Wichita Travels

Wichita Regional Transit Plan

- ✓ *Easy-to-use routes*
- ✓ *Connections to other communities*
- ✓ *Bus Rapid Transit (BRT) on Douglas Ave*

May 2010

Prepared For Wichita Transit
By The University of Kansas
Urban Planning Department
Graduate Transportation Planning
Implementation Class

(BRT, HNTB Corp.)

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Chapter I: INTRODUCTION

A. Purpose and Need

The demand for transit in the community has led community leaders and transit operators to assess the current system and recognize the need for service expansion. The Wichita Transit route network serves primary persons with mobility limitations, the impoverished and the elderly with transportation to lead productive lives and meet everyday needs. Community leaders and operators recognize inefficiencies in this transit network. **The system's radial pulse configuration lengthens travel times and limits connectivity. Peripheral routes do not intersect and transfers often require a trip to the city center.**

The public has shown support for transit expansion and enhancement. Recent surveys revealed 91 percent of respondents believed public transportation is important and 62 percent support a tax increase to improve transit services in Wichita. (ETC Institute Survey 2008). **Transit benefits the disadvantaged who depend on transit for mobility, improves air quality and reduces traffic congestion. Effective transit provides commuters an alternative and increases employee access to job centers. Transit can strengthen the connectivity and economic performance of the community.** This study assesses the strengths and weaknesses of the Wichita Transit network; identifies areas which are under-served; provides a vision for a comprehensive system, describes the costs and benefits of proposed changes along with a funding strategy.

B. Goals and Objectives

Based on the input of the Wichita Transit Advisory Board and the 2008 public opinion survey, the community goals are to:

1. Improve Accessibility **–** *Routes should*
Serve as many people as possible.
Connect to employment and retail centers.
Provide cross-town connectivity.
Encourage "choice" riders.
Provide connections to surrounding cities

2. Increase Public Awareness of Transit in Wichita
Materials revealing the benefits of transit are available.

"We are now serving 2% of the population. We want to reach the other 98%."

Transit Advisory Board

3. Deliver Efficient, Effective and Sustainable Transportation to Wichita

Transit delivers convenient, cost-effective service.
Route Coverage increases to serve more citizens.
ITS technologies enable route coordination to increase accessibility.
Frequency of service dramatically increases to make transit more attractive.
Develop successful funding strategies.

4. Improve Access for Communities outside Wichita into the city

Corridor express lines connect commuters to Wichita.
Establish park and ride lots for downtown and employment center access.

5. Improve Access for Mobility Limited Population

Establish a clearly defined service area.
Improve scheduling with ITS technologies.
Target zero-car households with fixed route transit.

"Chattanooga has great service because the bus comes every 7 minutes. Can we do that in Wichita?"

Transit Advisory Board

C. Study Area

The proposed study area includes the City of Wichita and developed area immediately adjacent and outlying areas that may be served with commuter express service.

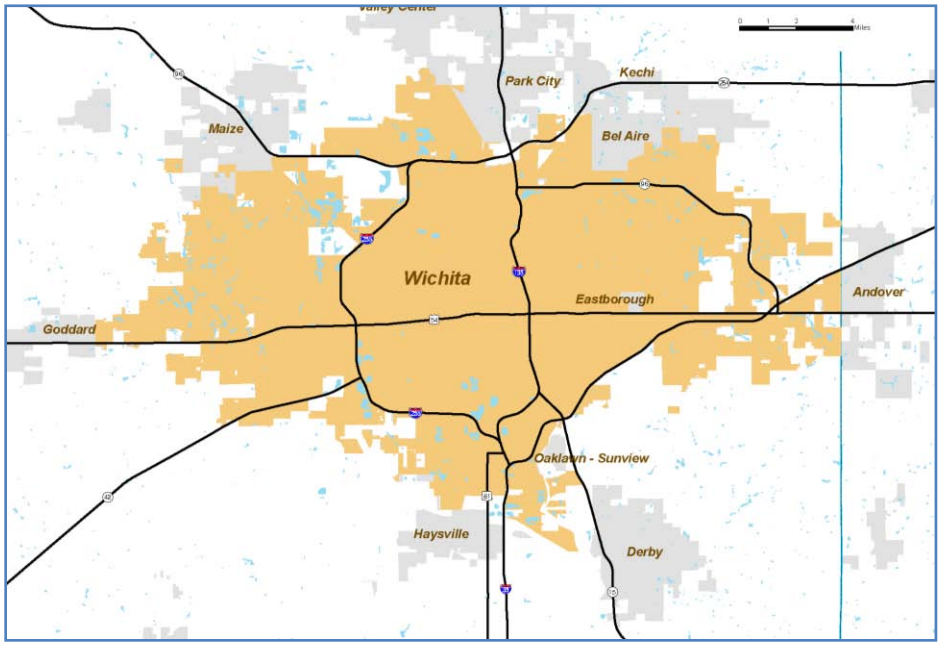
1. Urbanized Area

Service Area Service Area 1 includes the urbanized area as illustrated in the following figure.

2. Surrounding Area

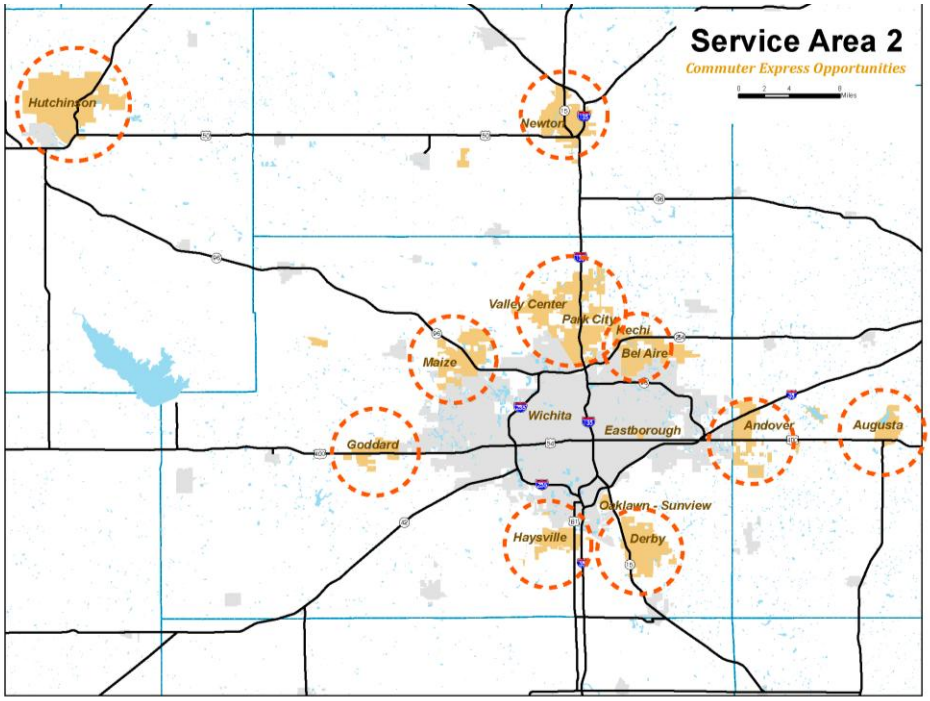
Service Area 2 is outside the city, including municipalities in Sedgwick, Harvey and Butler Counties. Commuter cities to be evaluated will include Andover, Haysville, Derby, Newton, Park City, Kechi, Goddard, Valley Center and Hutchinson.

Figure 1 Study Area One: Urbanized Area



Source: University of Kansas

Figure 2 Study Area Two: Surrounding Area



Source: University of Kansas

D. Comparison to Peer Cities

Peer cities were selected through likeness analysis from National Transit Database methodologies and through demographic similarities. After analysis of the study area and a wide range of potential comparable programs, transit agencies in the following cities were selected for the peer review: Chattanooga, TN, Des Moines, IA, Topeka KS, Omaha, NE, Toledo, OH, and Tulsa, OK. The following figures compare Wichita to these peers in terms of population and general performance indicators.

Figure 3 Peer Cities by Population

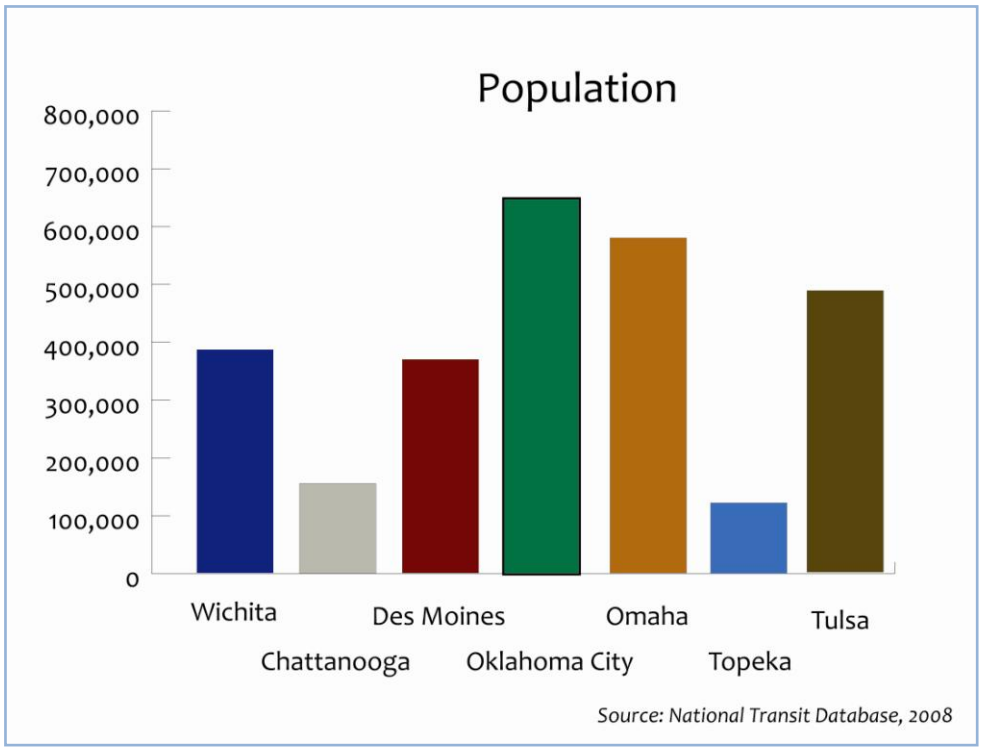
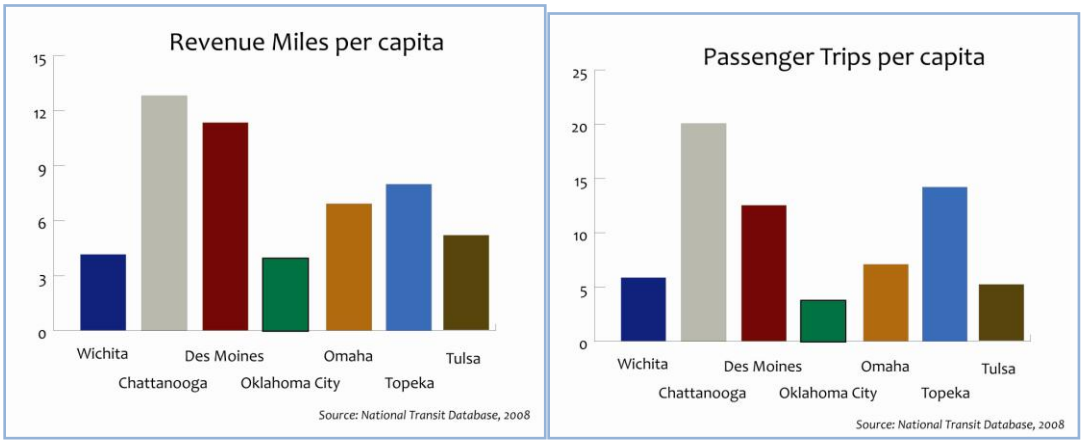


Figure 4 Peer Cites By Passenger Trips and Revenue Miles



E. Public Perception

A recent statistically valid survey found overall support among community members for improved transit services and facilities within Wichita. In April 2008, the ETC Institute conducted public surveys of selected groups of citizens in the Wichita area regarding their use and perceptions of Wichita Transit and the need for public transportation in the city. This study, conducted via phone interviews with 428 randomly selected residents.

88% of those surveyed said that they have not used public transportation in Wichita and 91% indicated that they drive alone to their job. A mere seven percent said that they use other forms of transportation to get to work, which included public transit services. According to the survey, **one in eight Wichita households has at least one member dependent upon public transportation**. The most frequent reasons to use public transportation for these individuals are to go to work, run errands, or go to a medical appointment.

The ETC survey of the general public found that nearly half of the residents would be inclined to use public transportation more if the price of gas rose above $3 per gallon or if bus service was more frequent. Of those surveyed, 22% indicated they would consider using public transit five days a week if it became more convenient. In contrast to surveys of on-board passengers, **85% of the general public said that Wichita needs to do a better job of educating the public about public transportation opportunities** suggesting that they did not know when or where the buses operated on a daily basis. Suggested fixes for the current system included 62% of respondents saying they would be somewhat or very supportive of a slight tax increase to improve bus service.

"Nearly half of the residents would be inclined to use public transportation more if the price of gas rose above $3 per gallon or if bus service was more frequent."

Survey of Existing Bus Passengers

Photo: University of Kansas

In May 2008, ETC conducted a third survey of bus passengers to identify perceptions of public transit in Wichita. Of the 320 randomly selected passengers who took the survey, **only fifteen percent said they owned a car that could have been used for their trip.** This coincided with the finding **that 69% of riders had an annual income of less than $20,000 and 98% of riders brought home less than $50,000 per year.** Additionally, 67% of those surveyed said that they rode the bus five days a week. This suggests that public transportation for these individuals is a necessity. Most riders used the bus to go to work (31%) or conduct personal business (29%).

Other findings from the on-board passenger survey showed that **49% of riders thought Wichita Transit provided "good" or "excellent" service as compared to lower approval amongst the general public and business leaders.** However, passengers said that two of their top three complaints about the system were the limited hours of service and the lack of service on the weekends, which compares favorably to the results of other surveys. Passengers said that the best characteristics of the system were the safety they felt while riding the bus and the ease of learning the system. These **passengers thought that the way to attract more riders would be to offer later service hours (73%) and offer weekend service (63%).**

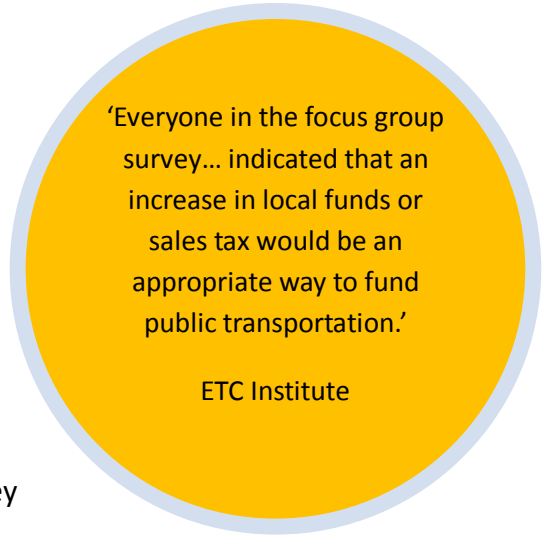
Focus Group

A third survey, conducted by ETC, used focus groups that sought input from three separate groups: Community/Business Leaders, Residents, and Transit Users. Knowledge of the system was high for transit users (78%), but relatively low for business leaders (12%) and residents (22%). This was due to the daily use of transit service by transit users. **Only 12% of community/business leaders thought that the existing public transportation system was good, while 22% of residents and 11% of transit riders thought the same. A majority of respondents in all three groups indicated that transit services were "average."**

Perceptions of the system were also compared to what focus group members thought of other cities in the region. 49% of community/business leaders thought that bus service was worse than other cities while 66% of transit riders thought the same. In contrast, residents thought that Wichita Transit provided better service than other cities. This result is likely due to the lack of knowledge of transit services in the

community. **All three groups agreed that public transportation is a good investment for the community, was safe for riders, but schedules and service is inadequate.** The three groups failed to reach agreement on the cleanliness of the buses/facilities, who the bus should serve (residents and leaders thought this should only be for those without a car), the reliability of buses (only leaders thought they were reliable), and if the bus serves the correct areas (again only leaders thought this was accurate). In all, **most respondents in the three groups agreed that the system should serve the disabled, seniors, and those who do not have the means to drive**.

All three groups also **listed the top destinations they thought Wichita Transit should serve, there were hospitals, downtown, airports, universities, employment centers, major retail destinations, and grocery stores**. The focus groups also laid out their priorities for public transportation. Included in all responses for each group were longer hours of operation. Leaders indicated that this would help workers while residents and transit users thought this would help them on a daily basis. Also included were weekend hours for public transit.



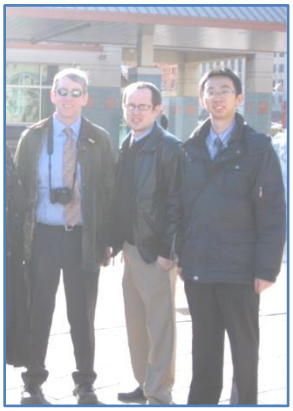
Everyone in the focus group survey, including business leaders, indicated that an increase in local funds or sales tax would be an appropriate way to fund public transportation. A later survey of residents city-wide found **that 91 percent supported further investment in the public transportation system.** All respondents in the focus group survey said that public transportation in Wichita is underfunded at the current time. Every participant in the survey went on to indicate that they would entertain using local taxes to fund public transportation. The three groups differed on which type of funding would be best for improving public transit. Business leaders preferred money from the private sector or requiring the City to manage its funds more efficiently. Residents also supported efficient fiscal policy, but also suggested that sales tax and increased user fees would help the system. Transit users said that federal grants and funds as well as a sales tax would be the best mechanism. **All three respondent groups had federal funding listed in their top five funding mechanisms.**

F. Study Team and Process

Study Team

This study was conducted by graduate students of the University of Kansas, School of Architecture, Design and Planning, Urban Planning Department, for the Transportation Planning Implementation course. The class was facilitated by the instructor: Marcy Smalley, AICP, Lecturer, with additional technical advising by John Dobies, transit planning professional. Dr. Alan Black, FAICP, Professor Emeritus of Urban Planning, The University of Kansas, also provided input to the students.

Research included field trips to Wichita, review of data from Wichita Transit, the metropolitan planning organization, industry standards, peer reviews and other sources.



John Elias, Adam Franz, Yilei Huang and Kassie Shelton tour area and Wichita transit system February 2010.

Tim Simon updates the Wichita Transit Advisory Board, April 2010 and participates in Downtown Master Plan workshop.

Client

This study was prepared for the Wichita Transit Advisory Board. Wichita Transit staff: Mike Vinson, Executive Director and Michelle Stroot, planner, provided data on the existing system. The Board provided additional review and input.

Wichita Transit Advisory Board, City Manager and staff review recommendations.

Study Components

After meeting with the Advisory Board to clarify goals and objectives, the team prepared the following components described in detail in this report.

- Existing Conditions (Chapter III)
- Potential Service Components (Chapter IV)
- Standards and Criteria (Chapter V)
- Vision (Chapter VI)
- Costs and Benefits (Chapter VII)
- Funding (Chapter VIII)
- Next Steps (Chapter IX)

The following is the Executive Summary of the study findings and recommendations. The client accepted the study finding in May 2010.

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Chapter II: Executive Summary

Wichita Travels

Regional Transit Plan

For the Wichita, Kansas Area

Today, the community recognizes inefficiencies in the existing transit system. Surveys show the public is willing to support transit improvements. The system's radial configuration lengthens travel times and limits connectivity. Many routes do not intersect well and transfers often require a trip to the city center. Services are limited and connections to surrounding communities are not available. The result: continued reliance on cars as gas prices increase.

The vision for tomorrow corrects current limitations and provides a bold transit plan for the future. It includes:

Easy-to-use routes

Connections to other communities

Bus Rapid Transit (BRT) on Douglas Ave

And other tools for a growing sustainable region.

Benefits

"Families can save up to $9,000 per year by relying on one less car. "

"$1 invested in transit generates $4 in economic returns."

(APTA, 2010)

Recommendations

- **Expand City of Wichita transit service pg 2.**
- **Introduce Bus Rapid Transit on Douglas Avenue. pg 3.**
- **Link to other communities with commuter service and Park and Ride lots. Pg. 2**
- **Improve Customer Service Pg. 3**

Cost and Funding Pg. 4

Next Steps Pg 4.

May 2010

Produced for Wichita Transit by the University of Kansas, School of Architecture, Design and Planning, Urban Planning Department, graduate transportation planning imple-

Photos: University of Kansas and HNTB Corp.

Grid

City o

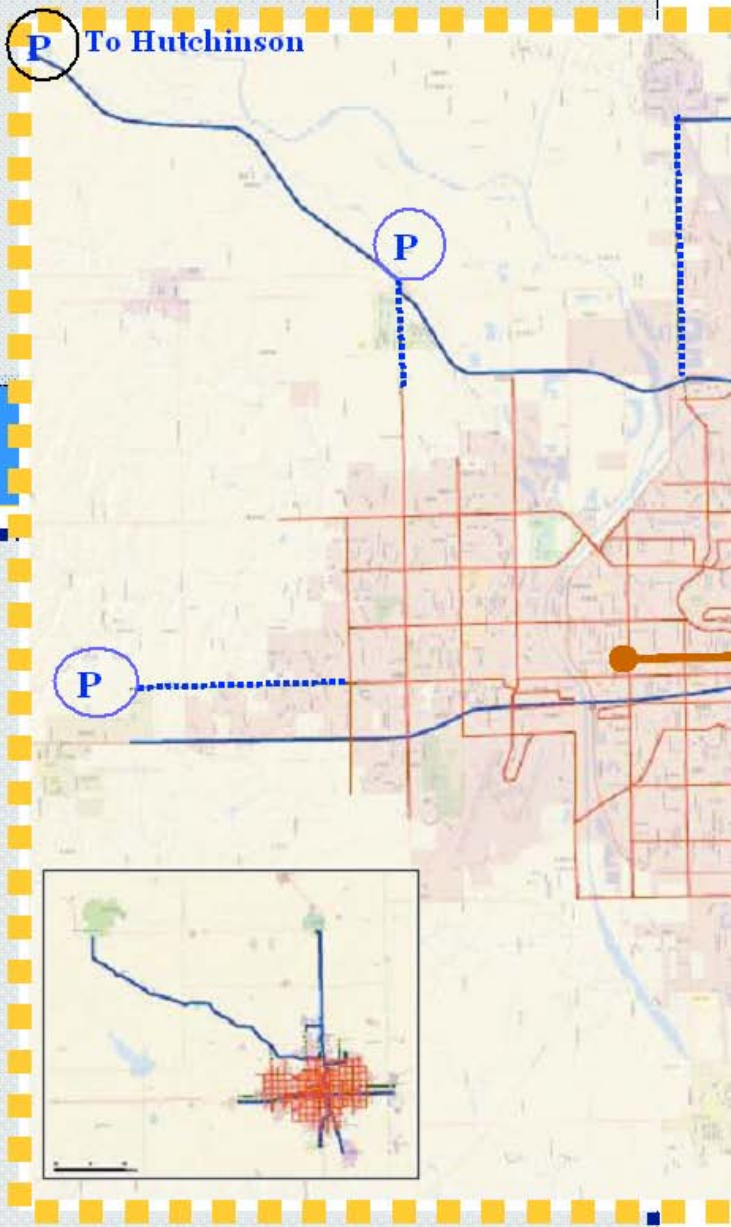
A new transit grid network of north/south and east/west transit routes serve more people. Routes extend from 119th Street to Greenwich road and from 37th Street north to 55th Street south. They are spaced every half mile (or within an 8 minute walk) in the denser older portions of the city. In lower density areas or where there are natural barriers, the routes are spaced approximately every one mile.

Corridor routes **operate on major streets and local routes** operate on local streets.

Bus Rapid Transit BRT **uses a new technology being implemented instead of light rail in many communities. "Think rail—Use Bus"** is the motto.

BRT has more flexibility and lower costs compared to light rail. It uses new-look vehicles, well developed stations, frequent service, bus only lanes and traffic signal preferences so vehicles go faster. This Douglas Avenue service links Towne East and West shopping centers and the major development nodes in-between.

Photo: HNTB Corp. Euclid Ave. Cleveland



Surrounding Communities

Adjacent municipalities may provide their own service to link-in to the grid at a transfer station, or the grid service can transition to express service to their communities: Andover, Park City, Bel Aire, Derby, Goddard, Valley Center, Haysville, Kechi, and Maize.

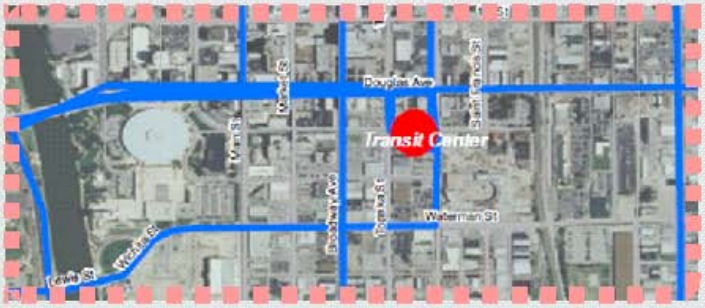
AND/OR

Other Communities: Andover, Augusta, Bel Aire, Derby, Goddard, Haysville, Hutchinson, Kechi, Maize, Newton, Park City and Valley Center **may link via Commuter express services to Downtown Wichita.** Commuter Expresses Services, designed for workers, operate Monday through Friday during the peak periods, every 30 minutes.

P **Park and Ride Lots** are provided throughout the region to facilitate connections.

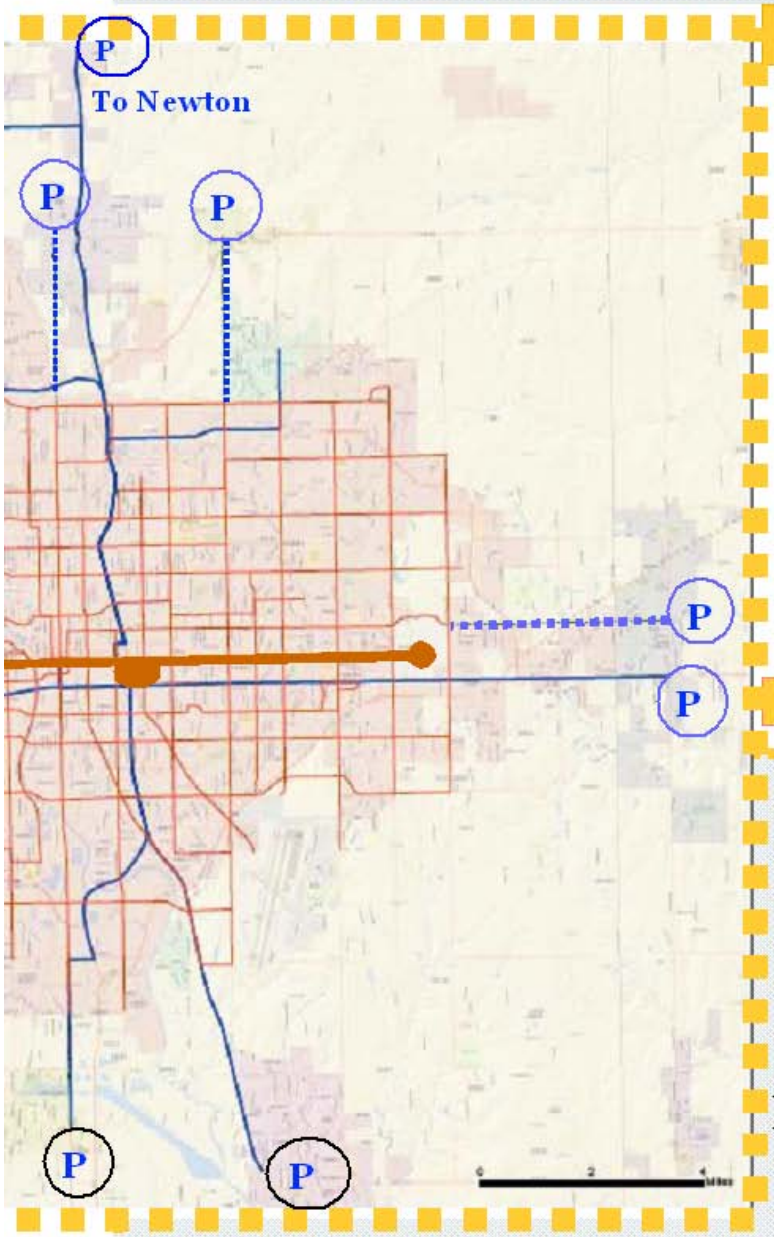
f Wichita Downtown

Modified Downtown Transit Center Use. New transit routes passing through downtown use the existing transit center that is modified to serve new uses.



Bus Rapid Transit on Douglas provides the back-bone for major corridor development.

Downtown Circulators. The Downtown Master Plan is designing extensions of the existing Q routes to provide to provide fast service to destinations around downtown.



Expanded Service

Corridor routes operate...

Monday – Saturday 5 am – 10 pm
Every 15 minutes during the peak hours, every 30 minutes other times.
Sunday 6 am – 6 pm Every 60 minutes

Douglas Avenue Bus Rapid Transit operates...

Monday – Saturday: 5 am – 10 pm: Every 10 minute during peak hours, every 25-30 minutes other times
Sunday 6 am – 6 pm: Every 60 minutes

Local routes operate...

Monday – Friday 5 am 8 pm Every 15 minutes during peak hours and every 30 minutes at other times.
Saturdays – 6 am to 8 pm Every 30 minutes
Sunday – No service available (corridor and BRT routes available)

Improved Customer Service

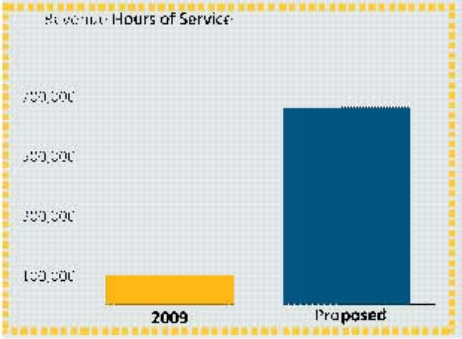
Expanded customer services include:

- Six to eight stops per mile and longer stop spacing for express services. Elimination of the current flag-down practice.
- More benches and shelters.
- More service information and places to purchase transit passes.
- Real time next-stop information about connecting routes at transfers points. Google Transit for interactive trip planning and use of text message, email, and Twitter to disseminate service information and response to requests.
- Route branding with a theme, an aviation theme for example could build on Wichita's aerospace history.

Cost—City of Wichita System

The vision requires new financial commitments for operating and capital costs.

Annual Operating Costs are estimated at $56 million. Today operating costs are $12 per year. The increase is primarily due to the increase in revenue hours of service provided.



Capital Costs are estimated at a total of $157 million (50-80% federally funded)

Photos: HNTB Corp.

Rolling Stock			
	Cost per Unit	Qty	Total Cost
Standard Bus	$410,000	177	$72,734,000
Stylized BRT Bus	$600,000	10	$5,760,000
	Rolling Stock Total:		$78,191,000

Facilities			
	Cost per Unit	Qty	Total
Bus Facility (300 Bus Capacity)		*estimated*	$30-45 Million
Shelters	$10,000	600	$6,000,000

Bus Rapid Transit			
	Cost per Mile	Miles	Total Cost
Right of Way, Shelters, Signal Priori	$3,000,000	9.49	$28,458,000
	Total Capital Cost *(high end)*		$157,952,000

Annual Capital Expenses	Annual
10% of Operating Costs	$5,609,100

Cost to other communities to participate

- Extension of the service grid is estimated to cost $7 million in initial capital and $2 million to operate
- Commuter routes would require $12 million in initial capital and $4 million to operate.

Funding

Operating funds and local match for federal grants funding:

- **The vision will generate additional fare revenues** by serving more riders. Fares are estimated to increase from $1.7 million per year today to up to $8 million per year when the plan is fully implemented.
- An inventory of funding options is identified in the report. The most popular, stable and highest yielding funding mechanism for transit operations nationwide are sales taxes. **A fraction of a one cent* sales tax could fund all operating costs and provide the local match for new federal funds for capital or additional funds.**
  (* A 1 cent sales tax collected county wide is estimated to raise over $90 million per year.)

"62% of residents would be somewhat or very supportive of a slight tax increase to improve bus service."
ETC Institute Survey 2008

Capital Cost funding

- Initial capital costs may be shared with Federal Transit Administration New Starts or American Recovery and Reinvestment Act grants – these grants require 20-50% local matching commitments.

Next Steps

- **Involve the community in planning.** Additional public involvement should build on past input from the Wichita Transit Advisory Board, public opinion survey, and the Non Profit Chamber of Services transit plan review meeting.
- **Continue collaboration with downtown master planning:** Consider expanded Q routes as part of the vision, check for possible overlap and adjust cost as needed.
- **Encourage a transit supportive environment** with related land use policies.
- **Inform the public of the benefits of transit** (costs saving, mobility, equity and the environment).

Chapter III: EXISTING CONDITIONS

A. Introduction

In order to provide the most effective and efficient transportation service possible for the City of Wichita this study must develop an understanding of the existing conditions as they relate to public transit. This will allow the team to develop a transportation system appropriate for the needs of the Wichita area.

The chapter examines both the Wichita urbanized area and surrounding areas where commuter express service is being examined. The sections paint a picture of area demographics, current public transportation service, and the area's economic climate, and development patterns. The chapter ends with a section dedicated to existing customer service, and costs and revenues of the transit system.

B. Demographics

As noted in Chapter One, the study area includes both the Wichita urbanized area and the surrounding communities they may serve for potential commuter express transit services.

1. Urbanized Area

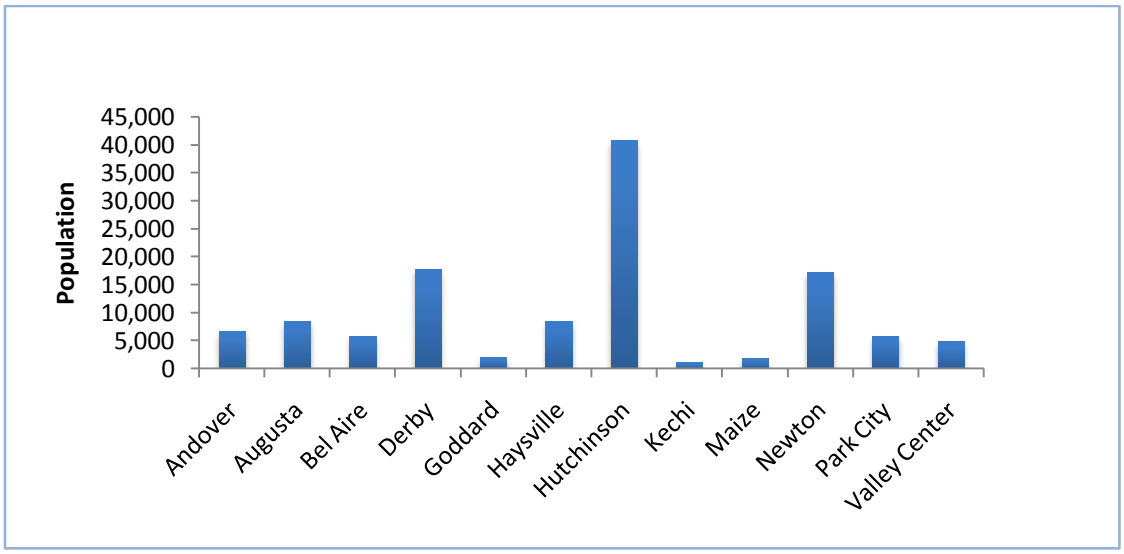
The City of Wichita occupies 139 square miles. According to the 2008 Census the City of Wichita has a total population 359,306 and an estimated 189,736 of the population 16 years and over is employed. The Wichita metropolitan statistical area (MSA) has a population of 588,984 and the population estimate within a 100-mile radius of Wichita is 1,002,464. Figure 1 in Chapter One illustrates the area.

Source: University of Kansas

2. Surrounding Area

Various towns identified in Service Area 2 (Figure 2) surround Wichita and are considered in this study in order to assess the potential for commuter express service. The following graph reveals the population of the towns in Service Area 2.

Figure 5 Population by Community



Source: US Census 2000

C. Public Transit Services - Urbanized Area

1. Service provider

Wichita Transit provides public transportation services for the City of Wichita. Wichita Transit is committed to meeting the needs and priorities of the citizens of Wichita with the most courteous, affordable, reliable, and economical public transportation possible. The agency's goals are to provide the most cost-efficient and effective service within established budget parameters, the most convenient service possible, and improve passenger amenities and technologies within available capital funding.

2. General Purpose Route System

Wichita Transit currently provides fixed route bus service using an 18-route hub and spoke system with 50 buses, 25 wheelchair lift vans, and four rubber tired trolleys. A complete description of each route is provided in Appendix A. **They also provide 25 demand-response paratransit routes and rides purchased under contract from 6 social service agencies.**

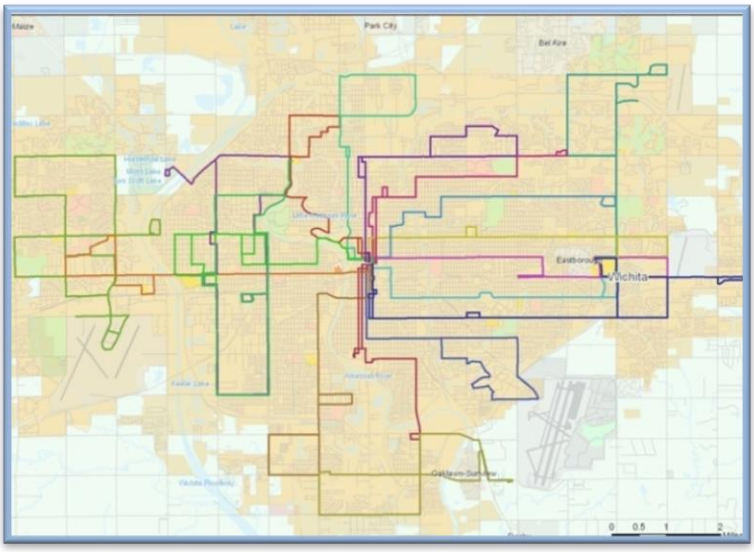
Service Span- **Services operate from Monday through Saturday**. Twelve buses provide service every thirty minutes during weekday peak periods (6:00 to 8:45 am and 3:45-7:00 pm) and hourly service at other times.

Frequency **– Two high volume routes (East Harry and South Main) run buses every thirty minutes Monday through Friday. The Meridian, Rock Road Shuttle and Westside**

Connector Routes experience lower volumes and run hourly Monday through Saturday.

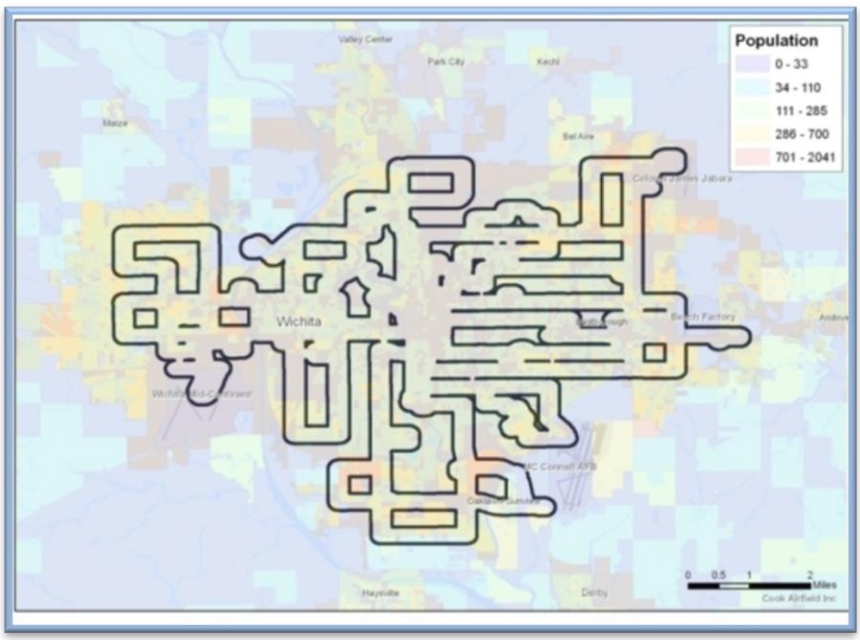
Coverage – The following Figures illustrate the existing system and the population coverage provided by the system today.

Figure 6 Transit System



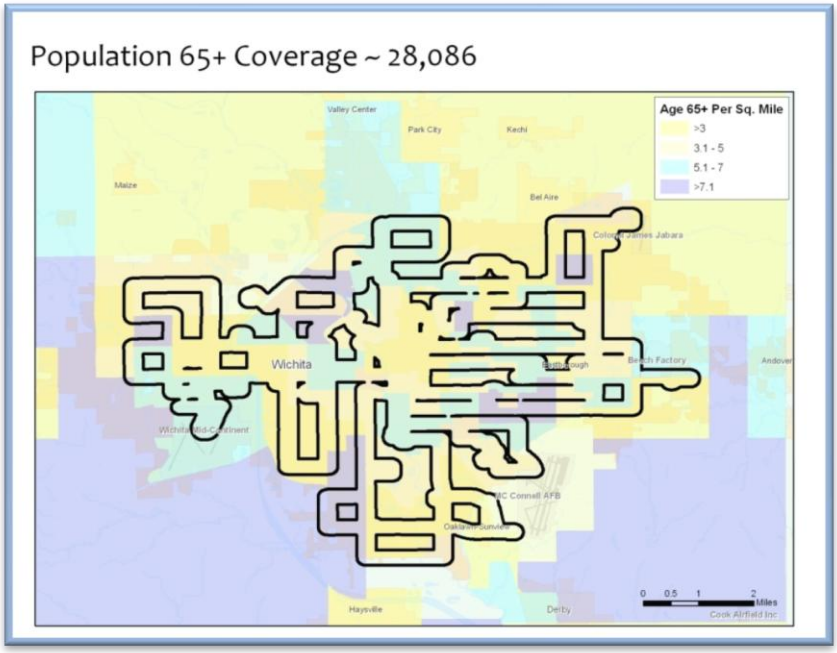
Source: University of Kansas, data from Wichita Transit

Figure 7 Population Coverage of Wichita Transit System



Source: University of Kansas

Figure 8 Population Coverage (65 years of age+) And Wichita Transit System

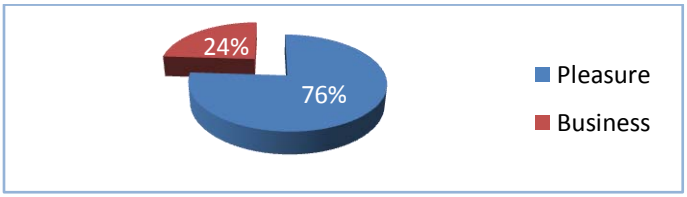


Source: University of Kansas, Data US Census 2000

3. Airport Services

Current service to the airport is limited. Providing a transit ground transportation option to and from the airport could provide a lower cost alternative to taxis, shuttles and rental cars and could benefit the city's well being. Wichita Mid-Continent Airport is the largest airport in Kansas and is a combination commercial air carrier and general aviation complex, providing accommodations for all aircraft. The annual passenger boarding in 2008 were nearly 781,000. The purpose of travel is higher for pleasure trips than business.

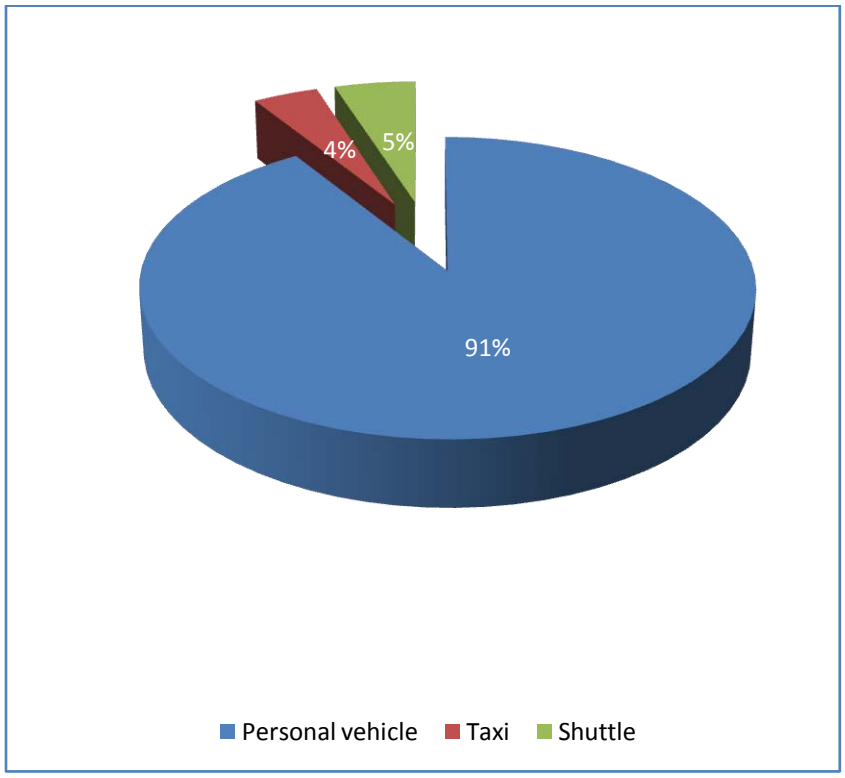
Figure 9 Airport Travel by Purpose



Source: WAMPO Transportation Plan 2035:
Air, Bicycle, Pedestrian, Rail, Roadway, and Transit Survey Results

The number of people using transit to and from the airport is not known. However, the WAMPO Transportation Plan 2035 Survey reported the ground transportation uses described in the following Figure. The survey responses are not statically valid because only the people attracted to the web site participated. Although this in not a random sample is should provide a general view of ground transportation use.

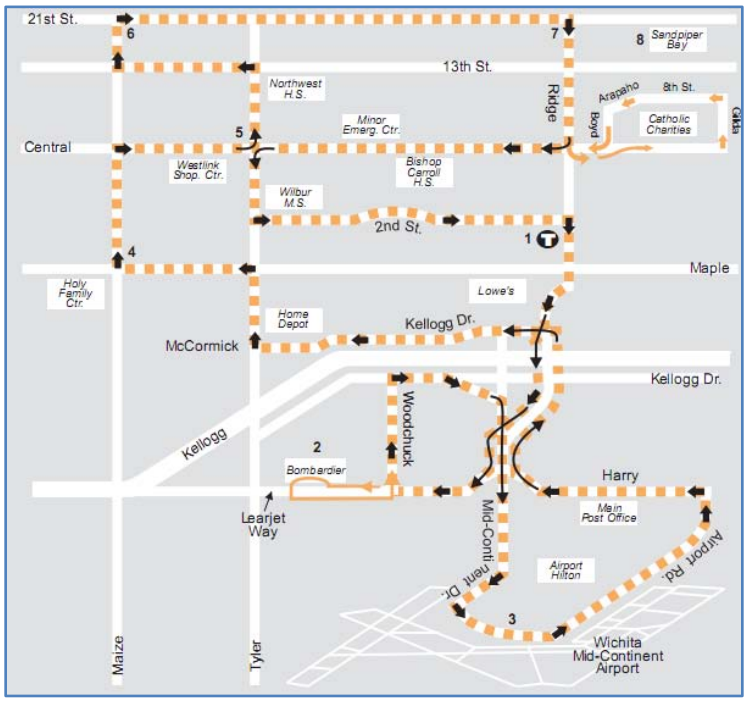
Figure 10 Ground Transportation Use at Wichita Airport



Source: WAMPO Transportation Plan 2035:
Air, Bicycle, Pedestrian, Rail, Roadway, and Transit Survey Results

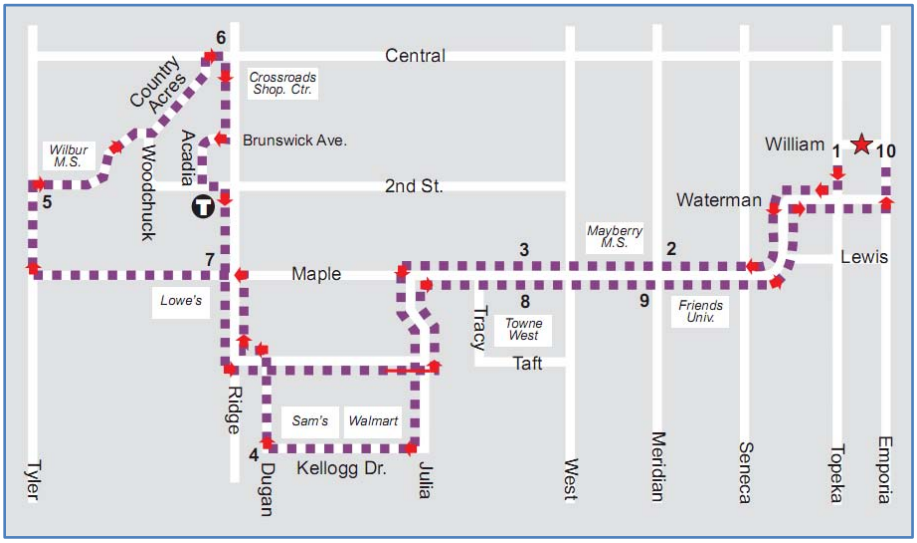
The Westside Connector Route is currently the only route serving the Wichita Mid-Continent Airport and is connected to Downtown Wichita by West Maple Route.
Service Coverage: This route provides coverage from Ridge St. to Maize St. east/west and from 21st St. to the airport north/south. Service Span: Service begins at 5:45 am and ends at 6:45 pm on weekdays, and begins at 6:45 am and ends at 5:45 pm on Saturdays;
Service frequency: Every hour

Figure 11 Existing Airport Transit Service: Westside Connector



Source: Wichita Transit

Figure 12 Existing Airport Transit Service: West Maple



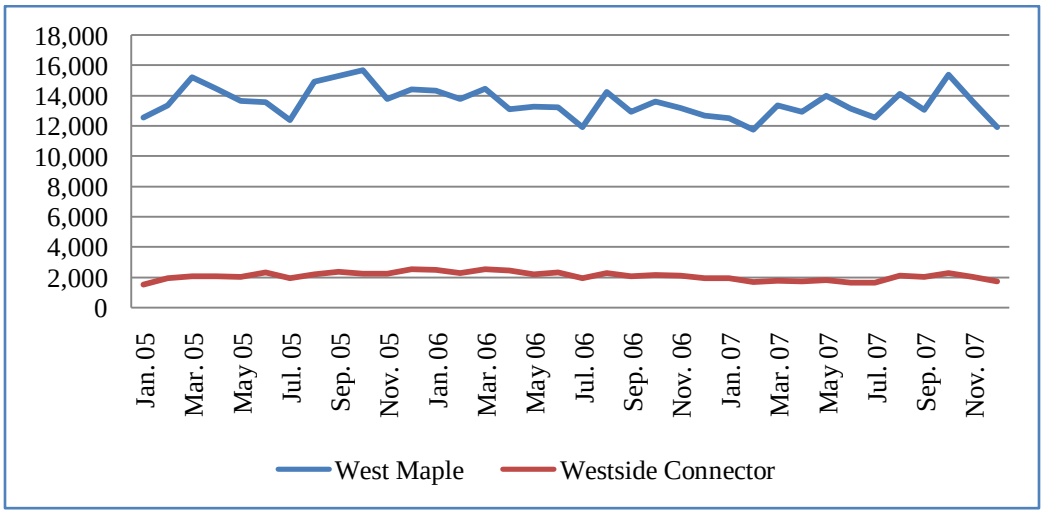
Source: Wichita Transit

Ridership on routes serving the airport

Figure 13 Monthly Ridership of Routes Serving Airport

Route to Airport	Monthly Ridership 2005-2007
Westside Connector	1,700 – 2,500 riders
West Maple	12,000 – 16,000 riders

Figure 14 Existing Routes to Airport – Transit ridership with Monthly Variation



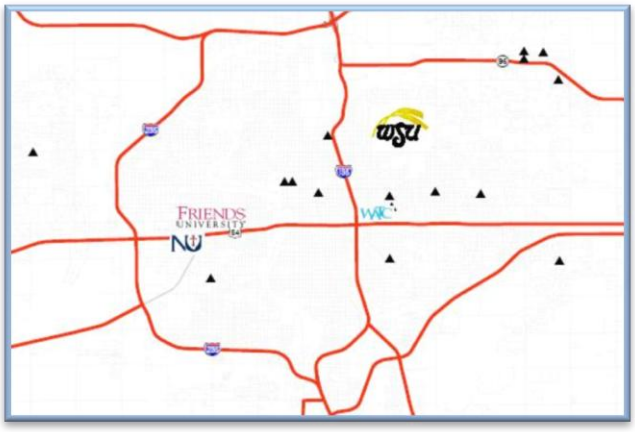
Source: Wichita Transit

The airport bus stop is located by the luggage sign in front of the terminal; two stops on the route are by request only through a telephone system. To access the CBD passengers must transfer by connecting to the West Maple Route, which has one-hour headway during off-peak hours and half hour headway during peak hours. The Park & Ride lot has 753 stalls available, with 24 ADA accessible stalls. Courtesy shuttles are ADA accessible and run between the lot and the terminal approximately every 10 minutes, 24 hours per day. There is no time limit for parking in this lot. The maximum daily charge (for a 24-hour period) is $6.00. Private transportation includes rental cars, cab, shuttle, and limousine services. Free phones for cab, shuttle services and car rental companies are available in the terminal building baggage-claim area at the Courtesy Phone Board. Cab and shuttle services are directly across the street from the main terminal building.

4. University Service

The location of the City of Wichita's educational institutions are illustrated on the following figure. Access to these activity centers provide a valuable resource for the community. Special events such as sporting events and other performing arts events draw in a significant amount of people from the wider community. Additionally, students residing on university campuses tend to have some limitations when providing their own transportation. Universities are a major destination for residents on a daily basis and should be a priority in a transit plan. There are three major universities within its boundary: Wichita State University, Friends University, and Newman University.

Figure 15 University Locations



Source: University of Kansas

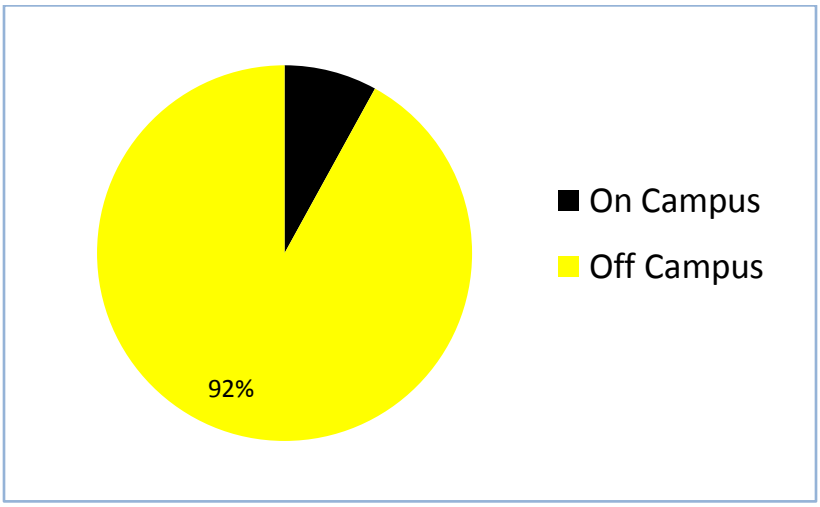
The current alignment of bus routes serves all three universities. However, none of the routes serving the respective universities provides direct service to the university. All current routes have further destinations than the respective university.

Wichita State University WSU

WSU has an enrollment, as of 2009, of 14,823 students, of which approximately 4,500 are part-time students. Furthermore, according to the university's website, only eight percent of undergraduate students live on-campus. This suggests that most of the student body is commuting to class by personal vehicle or public transportation. Parking at Wichita State is primarily focused around the northern end of the campus. These spaces are also around the major sports facilities on campus, such as Koch Arena and Eck Stadium. Parking is restricted for commuters when the basketball or baseball team has a game. Currently, Koch Arena has a capacity of 10,506, which routinely sells out games. Eck Stadium has a capacity of 7,851. Games during late February and March are typically held during the afternoon providing an increased premium for parking on campus. Many classes are conducted in the evening because of the number of commuting and non-traditional students attending WSU. The university offers more evening classes than other universities in Wichita due to its larger enrollment. Wichita

State University is served by the East 17th St bus line. As with all fixed transit routes in Wichita, service to WSU ends by 6:30 pm weekdays. No service is currently scheduled on Saturday or Sunday.

Figure 16 Wichita State Students living on and off campus



Source: Wichita State University

Friends University

Friends University is located between Kellogg and Maple Streets east of Meridian Avenue. The West Maple route serving the university on the northern edge of campus is one of the most travelled routes in the system, according to Wichita Transit. This is due to route being the only service to the west side of Wichita. Again, this bus runs on the hour. Friends has a markedly smaller enrollment than WSU, 3,000 students spread over multiple campuses across Kansas, and a higher proportion of undergraduate students live on-campus. Some of these students at other campuses and in Wichita are non-traditional continuing learners of whom Friends counts in the official total student enrollment. (Source: Friends University)

Newman University

Newman University is located south of Kellogg and west of Southwest Blvd. The university is served The same follows for Newman where the enrollment is 2,100 and all students with a junior status or younger are required to live on campus in student housing, however, an exact number of students living on campus is unknown. Newman is served by the Meridian Shuttle currently. This bus requires a rider to make a transfer to the West Maple bus in order to get to the downtown transit center because the Meridian Shuttle is one of the few routes that does not use the transit hub. This makes it especially hard for students to use the bus unless they are travelling to a destination on the Meridian line. Due to the smaller size of Newman and Friends, parking is not a

major consideration. Special events do not draw the same number of people and evening classes do not currently overburden the existing parking structures.

5. Services for People with Disabilities

Wichita Transit buses are lifted equipped. In addition, Wichita Transit offers complementary paratransit services, as required by Federal standards under the Americans with Disabilities Act, to individuals with documented disabilities. Annual ridership is currently 350,000 paratransit rides. In some instances, Wichita Transit will provide paratransit service to the transit center so that the individual may make a transfer to a fixed route to their destination.

Source: University of Kansas

Currently, riders must notify Wichita Transit the day before their trip if they wish to use paratransit. These trips typically are used for medical appointments and travel to work. Wichita Transit also provides some paratransit for social service organizations operating within Wichita. Paratransit service currently does not extend beyond the city limits of Wichita. Private companies and social service groups from the region (Sedgwick, Butler, and Harvey Counties) provide paratransit outside of the city limits.

On some lines of the current system, flex service is offered to those who need a connection to social service agencies and businesses not on the route of the bus line. Flex routes have been used in other cities to extend service to those with physical disabilities or otherwise. These routes would operate as extensions to current fixed routes. Another service not currently offered in Wichita is a demand-response bus. This would operate similarly to the ADA complementary paratransit bus, only it would provide service, door-to-door, for those without a documented physical or mental disability.

Wichita Transit operates within the guidelines of the Americans with Disabilities Act, as it is required to do under federal law.

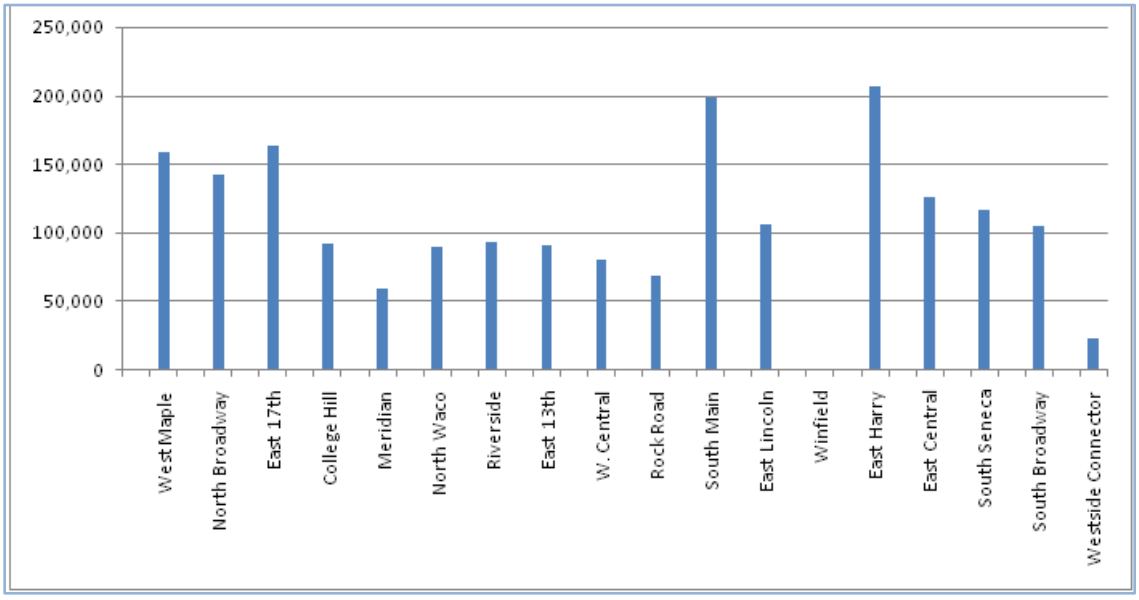
Wichita Transit Special Services operates from 5:15AM to 6:45PM Monday through Friday and 7:30AM to 5:00PM on Saturdays. Special Services provides paratransit rides

to persons with physical or cognitive disabilities that preclude use of fixed-route services.

6. Ridership

Ridership increased 15 percent last year due to the rise in gas prices. Annual ridership is currently at 2.4 million and 350,000 paratransit rides. The following graph shows ridership by route.

Figure 17 Annual Ridership by Route 2007



Source: Wichita Transit

D. Area Economic Characteristics

The City of Wichita sits within a large trade area that encompasses a population of more than 1 million people within a 100-mile radius. The MSA includes Butler, Harvey, Sedgwick, and Sumner counties. Sedgwick County represents the largest portion of the area's population with an estimated 467,008 residents in 2006. Forbes.com ranked Wichita 112 for Best Places for Business and Careers.

From the earliest days of the aircraft industry, Wichita has been a leading producer of general aviation and commercial aircraft. McConnell Air Force Base was activated in 1951 and has remained an important factor in the community. Wichita maintains a moderate cost-of-living rate of 94.1, which is little below average among 289 urban areas in the United States. **Wichita has a large manufacturing industry.**

The Herfindahl Index of Industrial Specialization is a measure of the size of firms in relation to the industry and an indicator of the amount of competition among them. The result is proportional to the average market share, weighted by market share. As such, it can range from 0 to 1.0, moving from employment evenly distributed across all sectors to all employment concentrated in one sector. An analysis of employment data from the BEA.gov website revealed that **Wichita has a Herfindahl Index of .89 which means that employment is more concentrated in a few sectors. This is largely due to the high percentage of jobs in the manufacturing industry, which is 17 percent according to BEA statistics.**

E. Development Patterns

The existing and proposed development patterns of Wichita impact the effectiveness of public transportation. Public transit is encouraged by what is commonly termed Transit Oriented Development.

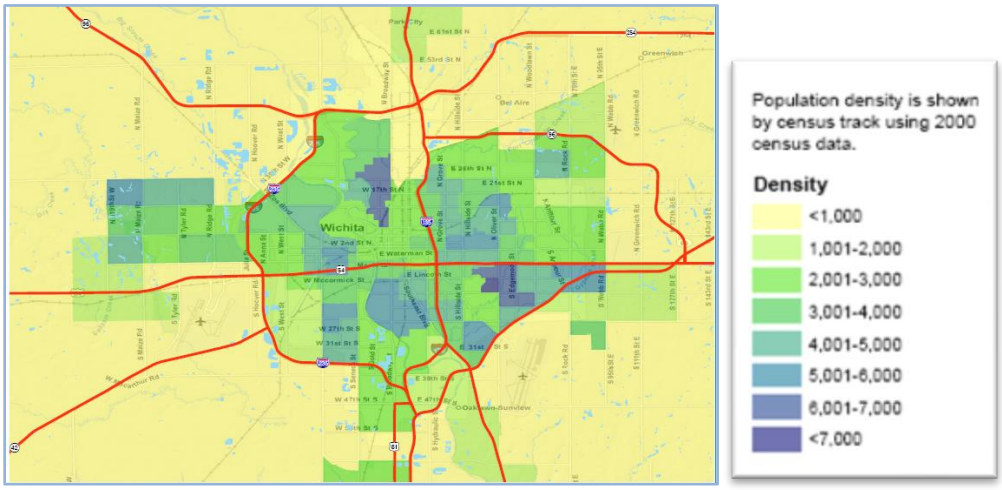
1. Transit Oriented Development (TOD)

TOD is a pattern of development that encourages a wide range of transportation options for the public. Typically, standards for such development are based on the so-called three “D”s: Design, Density, and Diversity. Design standards are developed to encourage pedestrian and transit movement to and from the area. Diversity standards are developed to encourage a mix of transportation options and a mix of land uses around stations thereby making it more attractive for people to use public transportation. Density standards, the most important when considering TOD, require a mix of high-density businesses and residences to attract ridership.

2. Area wide density

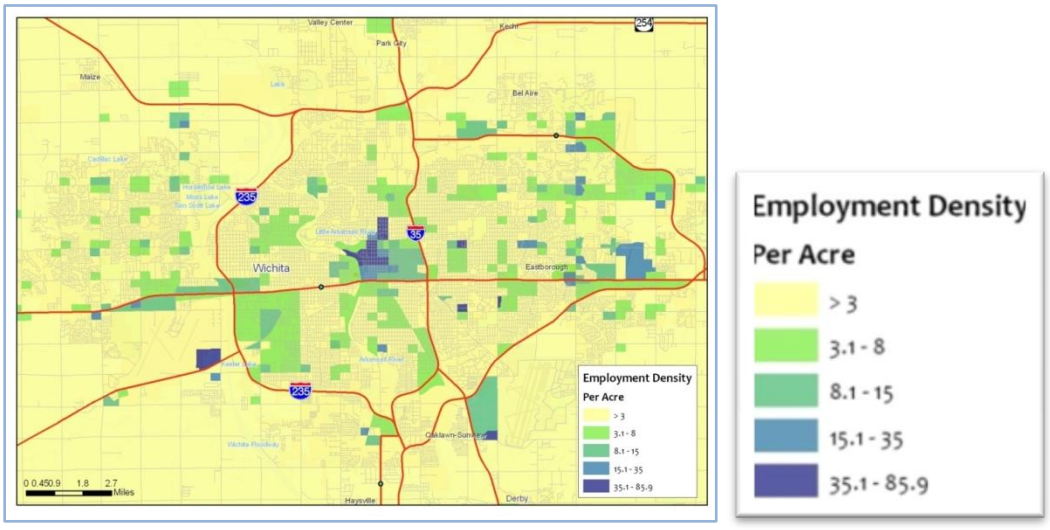
Density is a key factor is determining transit service type. The following illustrates existing and projected population density.

Figure 18 Existing Population Density per Square Mile



Source: US Census, 2000

Figure 19 Projected 2030 Density per Acre



Source: Data from WAMPO 2030 projections

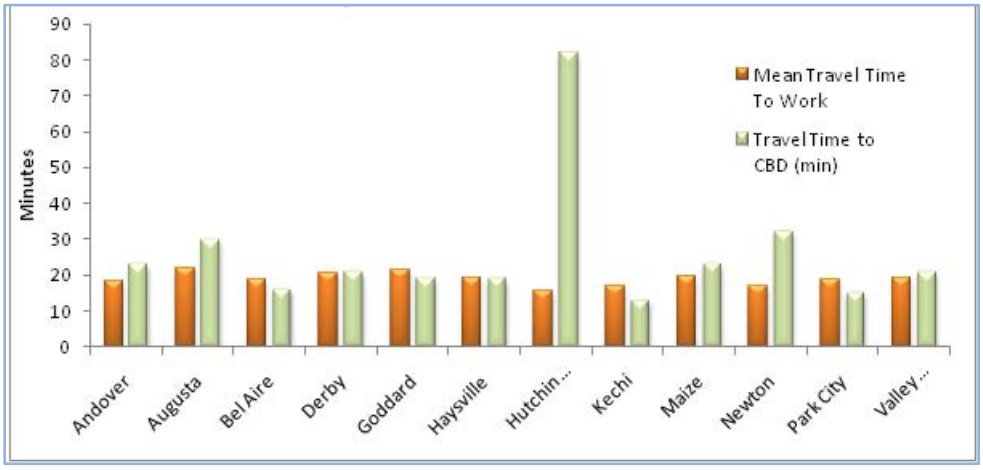
F. Commuter Express Service

The City of Wichita is a regional center for south central Kansas making it a destination for commuters from the surrounding communities. Municipalities defined in Service Area 2 generate the majority of commuter travel for the study area. Commuter travel is associated with certain types of trip patterns and trip lengths. Trips oriented to a single destination are common of commuter travel. Trips from the various towns in Study Area 2 to major employment centers such as Boeing or Wichita's CBD are considered commuter trips. Circumferential travel from one outlying town to another is also considered to be commuter travel.

1. Trip Length

Trip length is a significant indicator of commuter travel. Passenger are more likely to commute when travel trips are longer rather than shorter. As described in the following figure many of the mean travel times are greater than required to travel across a commuters own community, suggesting many workers are commuting to work in other communities. Also many of the mean travel times to work similar to the travel time from the town to the Wichita CBD, suggest a potential market for commuter express bus service. Figures 22 and 49 provide more detailed information concerning commuter demand.

Figure 20 Commuting Patterns



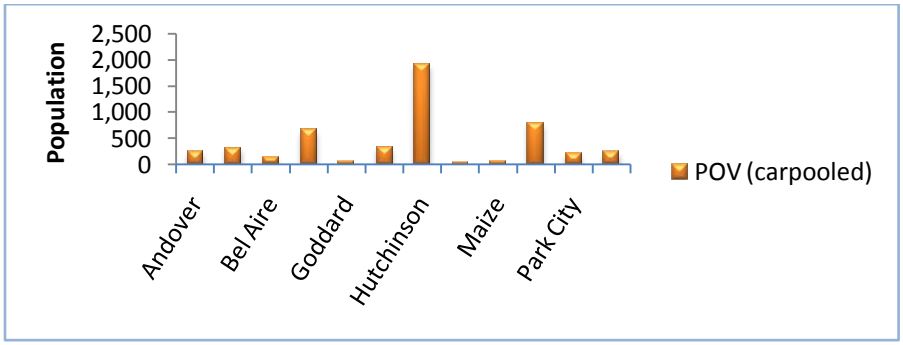
Source: US Census 2000

2. Existing Carpools

The current transit system provides service for commuter travelers using privately owned vehicles and carpools. **The Wichita Transit website provides commuters with an application process for connecting with other commuters**. The application enables travelers to locate others with similar commuting patterns based on origin, destination,

and work schedule. The website also provides literature to assist employers in promoting carpooling and to facilitate the establishment of carpools. The following figure shows the significant amount of carpool travel to work from the towns in service area 2.

Figure 21 Carpool to Work



Source: US Census 2000

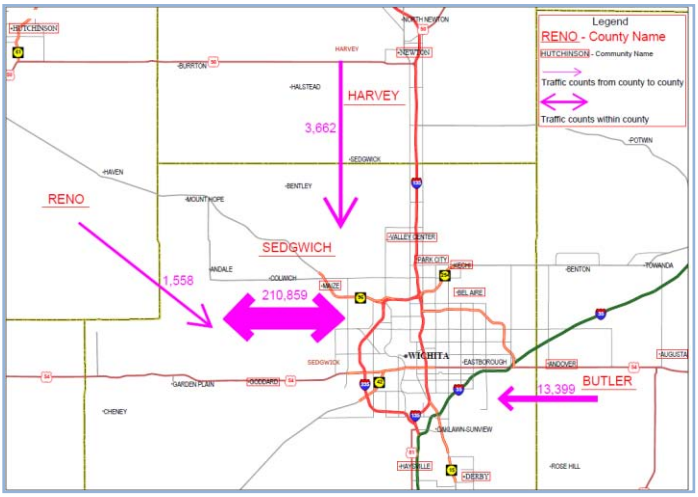
Carpool travel effectively transports commuters and alleviates congestions on the highway, however other services such as fixed route commuter express service can service a greater amount of travelers and thus lowering the total vehicle miles traveled (VMT). Express service provides fixed routes that transport commuters at high speeds across the service region making few stops along the route. Service vehicles generally operate along highways or expressways and limit stops to outlying park and ride lots, regional transit centers, and central destinations. In order to provide an effective and efficient commuter express service for the Wichita region the team must select corridors based upon various criteria that demonstrate the ability to support express service.

3. Commuter Travel Patterns

The following figure illustrates major work trips between Wichita and the surrounding communities. Observing the volume of travel by privately owned vehicles and by shared-ride services will indicate possible corridors that could support express service. High-volume radial travel corridors leading from the surrounding area (service area 2) into the urbanized area (service area 1) will indicate which corridors are most appropriate for commuter express service. Traffic volume on the radial expressways exceeding 50,000 vehicles per day should be used to identify potential corridors. As was mentioned above, trip length can be used to assess potential express service. Determining the amount of trips that are between 10 and 30 miles will allow the team to evaluate the presence of commuter travel in the study area**. Trips less than 10 miles are too short for limited stop commuter express service and trips greater than 30 miles may not provide a sufficient number of commuters to support commuter service.**

The following illustrates work multi-county work commuter trips.

Figure 22 Multi-county Commuter Travel Volumes

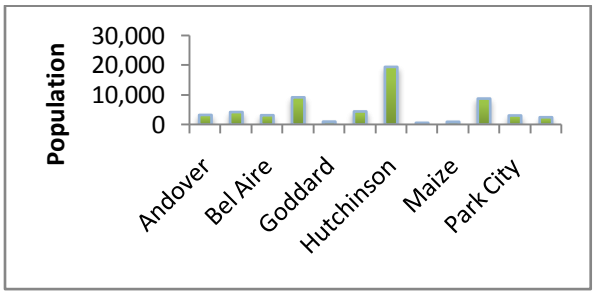


Source: University of Kansas calculations, Data: US Census 2000 Journey to Work

4. Total Population: Residential and Employment

The origin of a commuter corridor must have a sufficient population base to support commuter express service. **Towns in Service Area 2 with the highest amount of residential density and potential commuters destined to specific employment centers in Wichita will be considered for express commuter service**. Areas with a residential density of more than three households per acre are optimal. High employment density within service area 1 will indicate where travelers are commuting to and thus where the final stops should be.

Figure 23 Employment by Community



Source: US Census 2000

5. Travel Speed

Commuter express service must transport riders in a timely matter, so it is crucial that proposed services and compete with the automobile. Corridors with running speeds greater than 40 miles per hour have a high potential, corridors with running speeds between 40 and 20 miles per hour have a medium potential, and corridors with running speeds less than 20 miles per hour have a low potential.

6. Parking Availability

Parking lots at the origins of the express service routes are crucial to the success of the service. Passengers must be able to access the service in a convenient and affordable manner. This study should determine the location and size of parking lots at the origins of potential corridors. Origins in the surrounding communities with the most convenient and affordable parking available will have greater potential for commuter express service. **Parking conditions at the destination of the trip is also important and the more constrained or expensive the parking is the more attractive commuter express service will be.**

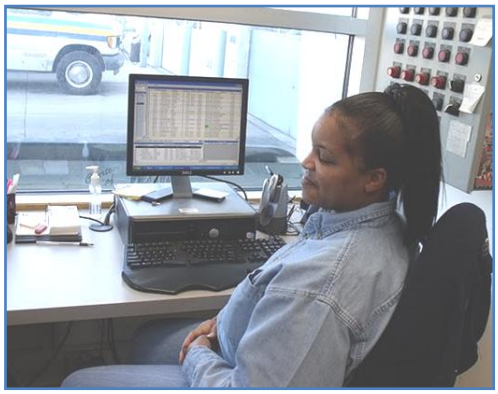
7. Roadway Selection

Commuter express service operates most efficiently on roadways classified as "major arterials" or highways. **Major roadways that connect to Wichita include Interstate 35, 135, 235, Highway 54, 96, 254, and 400.** All of these routes have strong peak directional travel in the morning and in the afternoon.

G. Facilities

1. Operations

There are 23 administrative positions and 107 employees, which are represented by the Teamsters Union. Wichita Transit operates fixed route service from the Transit Center at 214 S. Topeka.



Source: University of Kansas

Source: University of Kansas

Wichita Transit Administration offices are located at 777 E. Waterman.

Other Wichita Transit facilities include:

Source: University of Kansas

Main garage (777 E. Waterman)

- Built in 1999 includes six work bays and one service lane/wash bay.
- Only services diesel buses. Paratransit vans are serviced at the City Central Maintenance Facility.
- The main garage operates at capacity for the current rolling stock. Additional fleet would require an expansion of the existing facility or another garage.

Transit Center (214 S. Topeka)

Built in 1993, the transit center features 24 parking bays for buses and/or vans.

Photo: University of Kansas

The center also features office space for Access to Jobs staff, public facilities, a large waiting area for passengers and an information booth.

Rolling Stock

Wichita Transit's fleet operates 53 Buses and 17 demand response paratransit vans with additional service from 102 paratransit vans through a variety of local social service providers. Wichita Transit operates buses for a period of 10 years. The following table details the retirement schedule for Wichita Transit's buses serving fixed-routes.

Figure 24 Wichita Rolling Stock

Qty	Description	Retirement
25	Gillig Phantom 35 Foot, 37 Seat Bus	2014
9	Gillig Low Floor 35 Foot, 32 Seat Bus	2014
2	Gillig Phantom 35 Foot, 37 Seat Bus	2017
4	Gillig Phantom 40 Foot, 43 Seat Bus	2018
2	2001 Chance AH28 Streetcar, 27 Seat	2011
5	Chance Opus 29, 27 Seat Bus	2011
4	Optima Opus 29, 27 Seat Bus	2015
2	Optima AH28 Streetcar, 27 Seat	2014
53	**Total Buses**	

Source: Wichita Transit Source: University of Kansas

2. System Operations – Use of Information Technology Systems ITS

The following describes existing ITS in use and proposed improvements.

Audio or video surveillance:

All fixed route buses are equipped with audio or video surveillance. Video cameras can monitor the interior of buses. Microphones and transmitters can also enable audio surveillance. Wireless communication can make images and voices available to transit operation center.

Ongoing plan:

Automatic vehicle location (AVL) can provide dispatchers with a real time view of the location of each of the operating vehicles, and provide a playback mechanism to review the location of vehicles over a specified time range. Computer aided dispatching (CAD): CAD can provide dispatchers with a real time view of fleet operation, including schedule adherence, and provide a means for controlling the voice radio network and tracking incidents. Currently all demand responsive buses are equipped with CAD. Automatic passenger counter (APC) can automatically perform passenger count surveys on selected routes and analyze the data received. Real-time vehicle monitoring allows for the automatic collection and reporting of vehicle maintenance information.

Communications networks provide cellular data connectivity to receive automatic vehicle location information from the vehicles, and transmit text messages to and from the vehicles, and provide closed microphone operations for voice frequencies. The mobile data computer provides control of other in-vehicle system equipment and provides a user interface to the driver to log in to the system, send and receive text messages, request to talk to the dispatcher, and, in the case of demand responsive vehicles, view the daily manifest.

H. Customer Service

1. Information

The Wichita Transit website provides information to the public such as system map, individual route map and schedule, holiday schedule, bus fare, and a guide of how to ride the bus. It also contains contact information, the administration, operation, and maintenance of Wichita Transit. Customers can dial (316) 265-7221 to request bus arriving time for stops other than those indicated on the map and to require to be picked up at stops which are by request only. Each route has its own brochure with detailed route map and schedule. It also contains a system map and rider information, including bus fare, holiday schedule, contact phone number, and other services. The brochures can be obtained from Wichita Transit web site, the Downtown Transit Center, Wichita City Hall, the Wichita Travel and Convention Bureau Office, and the Rhatigan Center at Wichita State University. Brochures for a specific route can also be obtained on that route of bus.

2. Physical amenities: stops, signs and shelters

Physical bus stops include bus stop signs, benches, and shelters. A bus stop sign consists of a bus icon and a no-parking sign without route name and arriving time. A bench is placed at a bus stop when typically three to five passengers wait at a time. When a bus stop is a bench, no bus stop sign is placed. A shelter is placed at a bus stop sign when more than five passengers wait at a time. When a bus stop is a shelter, no bus stop sign or bench is placed. A shelter does not have a wall-mounted system map or schedule. A shelter can be painted custom by local communities. Actual bus stops are where passengers flag down the bus, typically at random corners of each block and physical bus stops. The driver announces each approaching physical bus stop through on-board radio. Each bus is equipped with a magnetic strip reader as the automatic payment system. The reader can collect bus fares for passengers with passes.

Source: University of Kansas

3. Ongoing plan:

Automated announcement system. The system includes internal audio announcement with LED message board and external audio announcement. It will automatically announce and display the next upcoming bus stop instead of announcing by the driver. The customer service system includes one kiosk and six dynamic message signs. The kiosk and five dynamic message signs will be installed at the transit center, and the other dynamic message sign will be installed at a plaza. They will provide next bus departure information.

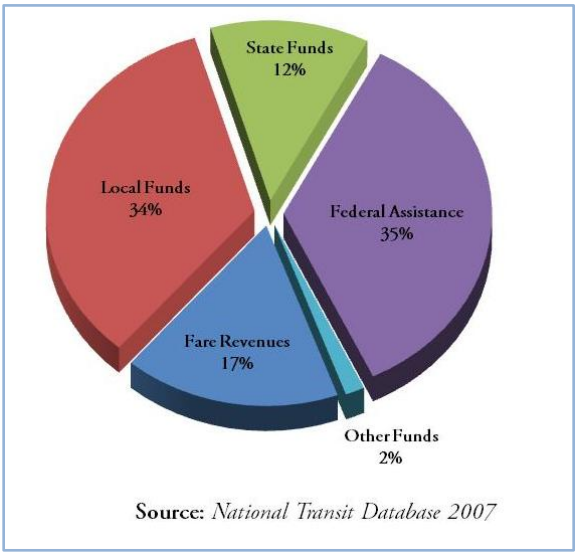
G. Costs and Revenues

Wichita Transit operates fixed-route and paratransit service in the city of Wichita and the surrounding area. Operating costs for 2007 totaled $10.5 Million dollars.

Revenue

Wichita Transit receives Fare and Advertising revenues in payment for delivering transit service. The cost of operating transit services in the Wichita area is further supplemented by Local, State and Federal funding. Graph 1 details the source for funding Wichita Transit operations. Local and Federal funds account for nearly equal shares of the operating budget.

Figure 25 Wichita Transit Operating Funds by Source



Fare Revenues	$1,777,745
Local Funds	$3,607,576
State Funds	$1,304,271
Federal Assistance	$3,726,744
Other Funds	$159,379
Total Operating Funds Expended	**$10,575,715**

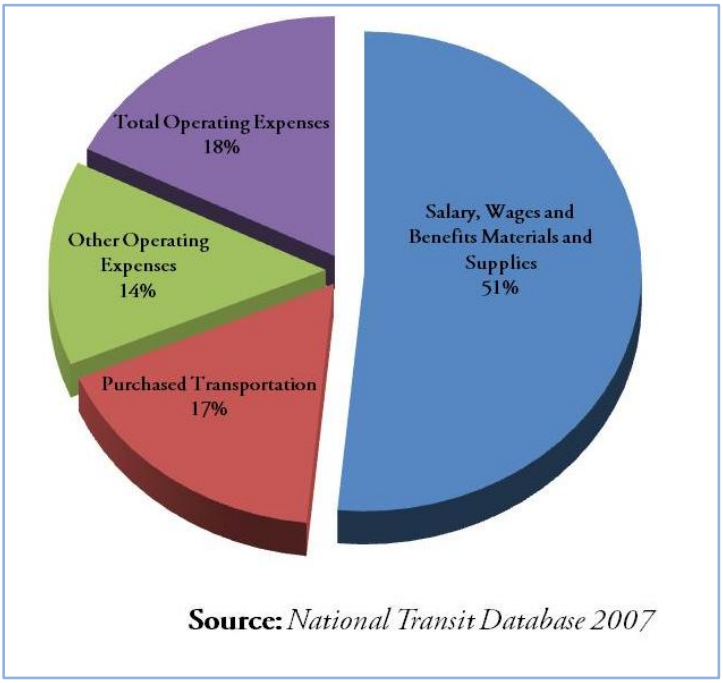
More than fifty percent of operating costs in Wichita cover the cost of salaries, wages and benefits for staff.

In addition to variable operating expenses like fuel Wichita Transit also spends 17% of its operating budget on purchase transportation to fulfill its obligations for provision of complementary paratransit to meet funding requirements.

Costs

Operating

Figure 26 2007 Operating Expenses

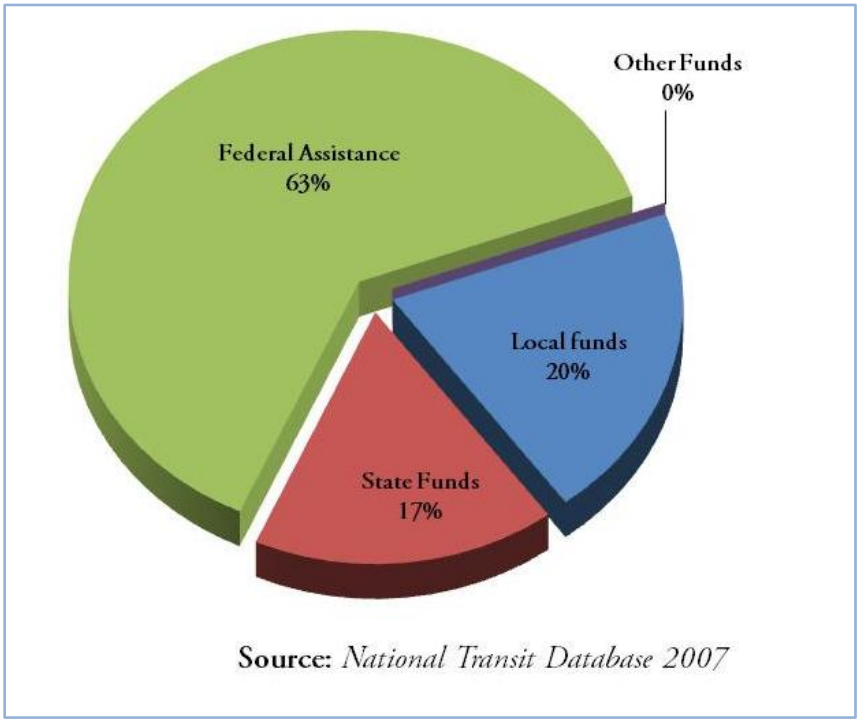


Salary, Wages and Benefits Materials and Supplies	$5,452,707
Purchased Transportation	$1,798,160
Other Operating Expenses	$1,461,079
Total Operating Expenses	$1,863,769
Total Operating Expenses	**$10,575,715**

Capital

In addition to operating costs the purchase of fleet vehicles and facilities are separated into Capital expenses. The majority of capital funding is received through Federal Transit Administration grants requiring a local matching share. Match levels from local sources depend on the grant program; most capital grants require local share cover 20% of the project cost. Preventative maintenance and some Americans with Disabilities Act (ADA) paratransit services are considered capital costs. In 2007 Wichita Transit had $555,000 in capital expenses. Federal sources provided 63% of capital funds in 2007.

Figure 27 2007 Capital Funds by Source



Local funds	$113,289
State Funds	$93,671
Federal Assistance	$347,990
Other Funds	$0
Total Capital Funds Expended	**$554,950**

The next chapter serves as the foundation upon which the team will build an inventory of potential service components in the next chapter.

CHAPTER IV: INVENTORY OF POTENTIAL SERVICE COMPONENTS

Providing transit to a widely dispersed and diverse population requires a variety of classes of service. **A successful transit agency will offer different types of transportation based on differing needs of services within the urbanized area and reaching to out to serve commuter express services to surrounding communities.** The following provides an inventory of potential service components to be assessed for applicability in the Wichita region.

A. Urbanized area

Service types within a metro area typically differ based on population and employment density. Based on conditions, some will operate in a local mode and others in an express or skip stop mode. Transit technologies may include fixed route service (bus, bus rapid transit and light rail transit); Dial-A-Ride (demand responsive) and circulator service.

1. Fixed route transit (Bus, Bus Rapid Transit and Light Rail)

This is often the most common service type. Service is regularly scheduled at times and stops identified in a printed route schedule. The spacing and frequency are determined based on budget, density and demand.

Operating mode:

Fixed routes services operate in either a local or limited stop mode:

Local Service

Local fixed-route service features frequent stops and, therefore, the most connectivity of all fixed-route services. Local routes interconnect and allow for transfers from one line to another. High numbers of stops slow service speeds but deliver the highest levels of inter-connectivity in the service area. Best coverage is achieved with peak frequencies reach 10-12 minutes.

Figure 28 Local Service characteristic

Type	Local
Population Density	High (Urban)
Frequency of Service	10-12 minutes

Source: ITE Toolbox for Alleviating Traffic Congestion (1989)

Limited-Stop Service

Limited stop fixed-routes service typically operate on arterial streets at higher speeds by limiting the number of stops. A "Limited" stops only at major points on the route and increases travel speeds at the expense of interconnectivity. Limited-Stop is similar to express service, but without a lengthy non-stop segment.

Figure 29 Limited Stop Service characteristic

Type	Limited Express
Population Density	Medium (Suburban / Urban
Frequency of Service	10-15 minutes peak Less Frequency or No service off peak

Source: ITE Toolbox for Alleviating Traffic Congestion (1989)

Transit Technologies

Transit technologies include bus, bus rapid transit and light rail.

- Bus – includes large and small buses.
- Bus Rapid Transit BRT

  Bus-Rapid Transit (BRT) utilizes infrastructure improvements and vehicle/scheduling enhancements to deliver higher quality service versus "standard" bus services. Features often include bus only right-of-way, signal priority, limited stops, special branding, rail-like stations and off-bus fare collection.

Bus Rapid Transit – Kansas City
Photo: University of Kansas

The Federal Transit Administration identified key components of successful BRT:

- A clearly identifiable running way, with a sense of permanence and minimum traffic interferences
- Safe, secure, and convenient access to attractive yet functional stations
- Clean, comfortable, climate-controlled vehicles that are easy to board and exit
- Passenger information systems at stations and on vehicles, which give "next station" announcements and vehicle arrival times
- A long service span, with frequent service throughout the day
- A simple, understandable service pattern
- A clear system image and identity

Through effective deployment of BRT many cities serve high traffic corridors with fast, reliable routes. BRT bus capacities range from 55 passengers to 100 on large articulated buses. On-vehicle fare collection and low-floor buses correspond to station platform levels to speed boarding of the general public and disabled riders alike. BRT buses may operate in mixed traffic with signal priority to speed reentry or feature bus-only guideways to further increase speeds.

Conversion to BRT depends on the level of application. BRT service operating in mixed traffic can deliver high capacity service at 10-20% of the cost of Light Rail. Services with bus-only guideways feature speeds rivaling the personal automobile. BRT installations deliver transit at speeds and capacities approaching those of Light Rail but at a fraction of the cost. With proper planning BRT guideways may also be converted to Light Rail at minimal cost should transit corridor volumes reach levels too high for BRT.

Light Rail

Light Rail transit operates electrically propelled rail cars along fixed-guideway rail lines. Cars draw current from overhead wires. Light rail trains operate on reserved rights-of-way that may or may not be grade-separated and may often run in streets with mixed traffic.

Figure 30 Light Rail in Denver Colorado

Source: HNTB Corp. photo by John Bell

Light rail offers higher capacity traffic than BRT along high traffic corridors. Light rail train cars feature capacities between 150-165 passengers per train. Very high traffic corridors may feature two or three cars in a train. Light Rail utilizes off-vehicle fare collection and platform level boarding to speed service. Light Rail service operating in reserved guideways can meet and exceed speeds of the private automobile. The higher capacity

light rail cars serve transit corridors with very large densities and ridership volume**. Light rail installations range from $50-100 Million per mile.**

Figure 31 Light rail characteristics

Type	Light Rail
Population Density	High (Urban)
Frequency of Service	3-7 Minutes Peak 15-30 minutes off peak

Source: ITE Toolbox for Alleviating Traffic Congestion (1989)

2. Dial a ride

Fixed-route transit services are not economical to operate in low density areas. Demand-Responsive Service provides coverage over lower density areas. Local services may feature Flex or Route-Deviation services to reach into areas that do not require fixed routes. Riders call ahead for service. **Operating costs are higher but Demand-Response service fills gaps and provides links to fixed-route services**. Well-defined service areas and scheduling rules help Demand-Response service control costs. Demand-Responsive service may take the place of complementary Americans with Disabilities Act (ADA) required service by providing paratransit for qualified individuals as well as service to the general public.

Figure 32 Dial-A-Ride Characteristics

Type	Demand Response
Population Density	Low (Suburban)
Frequency of Service	Scheduled

Source: ITE Toolbox for Alleviating Traffic Congestion (1989)

3. Circulator

Circulator services provide connectivity at nodes on a transit network. Circulators operate at high frequency in downtowns or around transit centers to connect high speed limited stop routes with lower density areas.

Figure 33 Circulator characteristics

Type	Circulator
Population Density	Medium (Suburban / Urban
Frequency of Service	30-60 minutes

Source: ITE Toolbox for Alleviating Traffic Congestion (1989)

B. Commuter Express Service

Commuter Express service typically provides connectivity between outlying areas or surrounding communities and the major employment centers such as the central business district. Park-and-ride lots are a common feature of express service at the residential end of the route. Express service is similar to limited-stop service, but with a long non-stop segment that often travels a limited access highway.

The transit technology used depends on the service demand. For example where demand is high commuter rail is sometimes used. **More often express buses are used. Van Pools/Car Pools offer other options.** Transit systems often use logistical resources to coordinate Car Pool matching. Many transportation providers across the nation have also partnered with businesses to create employee van pools that take advantage of employer and employee tax benefits for commuting. Vans are purchased or leased by the company(s), provided through the transit agency or employee vehicles are used. Drivers often pay nothing while riders split the cost of operation.

Car and van pools and Demand Responsive services feed into fixed-route services in large metropolitan areas. Population density and transit ridership dictate the level of service required in differing areas.

The next chapter: Standards and Criteria describe the standards upon which the regional transit vision will be based.

Chapter V: STANDARD AND CRITERIA

A. Introduction

The general standards upon which the service vision will be developed are related to achieving the plan's goals. The standards are presented first for the urbanized area, then the surrounding area followed by standards for overall system efficiency and customer service.

B. Urbanized Area – Standards for Improved Accessibility

A major plan goal is to provide comprehensive transit accessibility to the people of the Wichita area. The standards below describe the general criteria for easy access at convenient times; for appropriate transit vehicles for different services; and for levels of service based on expected use and need.

1. Provide a grid transit system

Where possible the system should be based on a grid of north/south and east/west routes. The purpose of this standard is to provide high levels of easy-to-understand service**. With a grid, travel to most every destination can be achieved with no more than one transfer.**

Figure 34 Grid Standard

Source: University of Kansas

2. Provide Services within Walking Distance

Transit services in the urbanized area should ideally be within walking distance of people's homes, jobs, services and recreational opportunities. Walking distance is considered to be no more than ¼ mile or an eight minute walk to a bus stop. It must not be forgotten that transit riders are also inherently pedestrians and the closer the stop is to a given point, the more apt people will be to ride transit.

3. Base service on land use characteristics

Provide Corridor routes which operate in major transportation corridors that are spaced approximately two miles apart. Large or small buses should be used. Rapid transit technologies may be used in the most heavily used corridor. (detailed standards for bus rapid transit follow)
Locate Local routes on local streets that are approximately ½ to one mile apart based on availability of the grid street system.
Deploy Demand responsive service using bus or taxi style vehicle for ADA complementary services and in low density areas.

4. Provide adequate service span and frequency

- Ensure quality service during AM and PM peak as well as Midday, and Evening. Night service should be provided to serve swing shifts. Some service levels should be provided each day of the week.
- Focus Commuter Express services on the AM and PM peak Monday – Friday.

5. Base service on population and employment density

- Operate local bus service in areas with a minimum density of seven units per acre or 3,000 people per square mile.
- Space routes ½ to 1 mile apart from each other to optimize the efficiency of the system.

6. Implement Bus Rapid Transit based on standards

- Use a minimum ridership standard of 5,000 boardings per route. This could be achieved over time.

Figure 35 BRT Ridership Standard by Boardings per Day

Ridership		
Boarding's per Day		
High	Medium	Low
> 10,000	10,000 – 5,000	< 5,000

Source: TCRP A-23 Implementation Guidelines for Bus Rapid Transit. Final Report. June 2003.

- Use a minimum density standard in the range of 10,000 people per square mile or a residential population density of 12-15 units per acre, according to Reid Ewing, in what he calls "premium bus service." This is equivalent to a typical garden apartment complex or medium-density residential development. The following table shows the potential of a corridor for BRT based on residential density.

Figure 36 Population & Employment Densities Recommended for BRT

Residential Density		
People per square mile		
High > 10,000	Medium 5,000 – 10,000	Low < 5,000
Employment Density		
Employment per Square Mile		
High > 25,000	Medium 10,000 – 25,000	Low < 10,000

Source: Adapted from TCRP Report 48. Integrated urban models for simulation of transit and land use policies.

- Use a BRT Employment density standard of over 75 employees per acre. Source: Reid Ewing.

- Use BRT Operation Standards: Stations should be placed at least 2,000 to 4,000 feet apart.

7. Light Rail Transit (LRT) - not warranted

If Wichita desires to have light rail transit in the future, the following conditions should be met. These are items that the community could work toward if they desire a "rail future".

- Light Rail would require even higher density than 15 units per acre. A LRT corridor typically has residential densities of 20-30 units per acre within a ¼ mile walk of a stop. This translates to, at minimum, 12,800 units per square mile within those corridors. This would equate to 32,000 people per square mile at a density of 20 units per acre assuming the average household size of approximately 2.5 persons per household. Source: US Census.

- Multi-nodal corridor - In order to effectively implement LRT, the system would need to connect multiple urban nodes sometimes referred to as a "string of pearls". The pearls in this example are nodes of mixed use development in which one may find residential, commercial, and office uses in a densely packed area.

- Over 125 employees per acre are typically required to support a light rail service. Source: Reid Ewing.

- According to research, employment densities generally provide a better indicator for potential success of a transit line. The following table indicates the employment densities based on the same example in metro Kansas City:

Figure 37 Employment per Square Mile for Light Rail Transit

High	Medium	Low
> 30,000	15,000 – 30,000	<15,000

Source: HNTB Corp.

Currently, smaller cities such as Little Rock, Arkansas, and Kenosha, Wisconsin, operate street car systems, but these serve little other purpose than for the tourists for those cities. Kenosha is the smallest city that currently has a functional rail system with a population of around 96,000. (Galveston, Texas, also had a rail system before Hurricane Ike grounded the service).

8. BRT and LRT Rail – Transit Supportive Development Standards

Mixed use development and design standards are major factor in successful implementation of LRT and BRT systems. BRT works best with Transit Oriented Development (TOD) around stations.

This means increasing density in employment and residents to the recommended standards above. Also, many cities have modified their development ordinances to more readily accept mixed use development around the transit stops. This includes reducing minimum setback requirements of buildings, improving pedestrian facilities, and reducing the amount of parking available to people using the shops and housing adjacent to the transit stop.

Each stop in a TOD area should look like a self supporting region that provides essential services and employment opportunities for the general population. TOD requires higher densities around the station, which would ideally be over 15 units per acre of mixed use development. Walking distance should be less than ¼ mile to any service from the station under optimal conditions.

A tool used by some cities, as mentioned by a study conducted by HNTB for a Kansas City transit company, is to move toward form based zoning within a BRT corridor. This would encourage

zoning based on the form of the building rather than the land use. Zoning done this way would encourage compatible and visually appealing buildings around the transit station.

Examples of successful applications of BRT exist in Cleveland, Ohio. The BRT, known as the Health line since it services some of the major hospitals in the area, operates a 6.8 mile route from downtown to an inner ring suburb. Much of the route along Euclid Avenue routes the buses along a dedicated center lane allowing personal vehicles to operate without delay. In addition to the exclusive center lanes for BRT, Cleveland invested in TOD along the entire corridor by adding bike lanes along the right side of the street. TOD is encouraged along the route with 59 stops by developing denser pockets of development around many of the stops. One example is the East Forth Neighborhood which now boasts many restaurants and mixed use high density development suited for bus rapid transit. Many of the 59 stops include a zero entry platform allowing customers to easily enter the vehicle. **The BRT began operation in October 2008 and experienced a 47 percent increase in ridership in the first year over previous service.**

Another example successful BRT is in Kansas City, Missouri. The MAX, Metro Area Express, opened in July 2005 serving downtown and points south toward the Country Club Plaza**. This service did not only service tourists and shoppers, it also served, as a primary function, lower income families along the route**. The route travels along Main Street for much of the route and has begun to encourage new TOD between the Plaza and Downtown. It includes 40 stations that are uniquely branded as the MAX line and resemble station markings for a metro in a larger city. Unlike Cleveland's BRT which runs 24 hours, the MAX runs between 5:30 and midnight with 10-30 minute headways. The MAX has been such a success, with ridership up 50% the past year, that KCATA plans to open a new BRT line serving lower income populations along Troost Avenue within the next year.

9. Demand Response service standards

- This service would be limited to ADA Complementary Paratransit trips and service to low density areas.
- A general density guideline is less than 3,000 people per square mile or less than 7 units per acre. Most Demand Responsive service operates directly to the destination. The area served is typically a single-family residential area.
- Rides on this part of the system would require the user to call in advance for a ride from Wichita Transit in a van similar to those used in the paratransit system.
- As mentioned in previous chapters, Wichita Transit currently provides ADA Complementary Paratransit services for residents within the city limits of Wichita. They operate this system within the Federal Government's criteria for this service. The

standard indicates that patrons must give previous day notice to the transit agency, providing certifiable documentation of a mental or physical disability in order to use the paratransit service.

10. Serve Mobility Limited Populations and Human Services Agencies

- Respond to community needs: On April 10th the KU Team met with nine not for profit organizations serving the greater Wichita area to learn more about how the transit vision should service mobility limited citizens. The following are comments from the meeting that was organized by the Non Profit Chamber of Service:
    - "We work with men with limited resources, they need expanded service. Current service does not get you where you need to go." Advocacy for Ending Homelessness:
    - "Transit is necessary for our clients" KETCH
    - "Transit helps de-institutionalize citizens with disabilities" Cerebral Palsy organization:
    - "Connections are needed between Wichita and the surrounding area" Independent Living Resources
    - "Transit helps clients with limited resources" Free Health and Dental Clinic:
    - "We are located right on the transit line" Midtown Community Residential Center
    - "Our clients use transit, they need evening service" Center for Health and Wellness–
    - "Some clients drive illegally because of DUI. They need transit to get to work". Substance Abuse program

- Human Service agencies line the Wichita region since it is the choice destination for many people seeking hospital and out-patient services. Regularly scheduled service to major human service agencies should be provided and coordinated with ADA complementary paratransit service.

- Services should include lift equipped vehicles, ADA Complementary Paratransit services for those with disabilities and services should also be provided to young adults too young to drive.

- Comprehensive services should be provided in Environmental Justice areas. In the early 1990s, then President Clinton signed an executive order that defined Environmental Justice areas that must be served by agencies such as Transit providers. EJ areas are defined as having a population of more than 50% that are minority or low-income as compared with the surrounding area. EJ areas have a high proportion of zero car households due to being predominantly low-income areas.

11. Connect Employment Destinations

- Serve the Aerospace Industry: **Wichita is built on the aerospace industry and the residents they employ. These workers at Spirit, Cessna, Hawker Beechcraft, Bombardier Learjet, and Boeing, work many non-traditional hours that require additional buses to meet the needs of the workers**. In the past, a van pool for residents working at Boeing was organized by the employer, but this has since ceased. Over 30,000 people in Wichita are employed in this industry.

- Serve all top employers if feasible. Other major employers with more than 5oo employees have a major presence in Wichita. These corporations include Koch Industries and Coleman. As with the aerospace industry, standards dictate that these companies should be served by at least one line during peak hours. Since both also have shift workers, standards indicate that more service would need to be provided for those working second and third shifts.

12. Provide airport service

Included should be high quality service to both travelers and airport employees. This requires appropriate service coverage, span and frequency.

13. Serve Downtown travel and development needs

The following service types should be implemented and the following issues considered:

- Fixed routes (corridor and local) including higher level rapid transit on major corridor should be implemented. The highest concentration of employment centers is in the downtown region.
- Downtown Transfer system - Currently, nearly all City buses feed into the transit center downtown. The continued use of the transit center should be explored.
- Distribution/circulation system - The Q route currently provides circulation services. Additional Q route expansions are being developed as part of the Downtown master plan. Also consider the use of potential BRT to provide some circulator functions.

14: Serve Major Universities

C. Commuter Express to Surrounding Communities

1. Provide commuter express services

- Use park and ride lots to communities with adequate journey to work travel

- Demand should be sufficient to reasonably fill one express bus.

- Park and Ride lots should be located at the furthest extent of the service and where the grid system begins.

2. Provide adequate service span and frequency

- Service span should be Monday – Friday during the peak periods
- Frequency should be every 30 – 60 minutes.

3. Use Car pool and van pool services as appropriate in lower use corridors.

D. Deliver Efficient, Effective and Sustainable Transportation to Wichita

1. Provide a high level of customer service

- Develop a grid system with more direct and faster routing
- Consider a guaranteed ride home program
- Provide routings with fewer transfers – most trips should not exceed one transfer
- Develop easy to understand information and services
- Provide bus stops with proper spacing and bus shelters as needed based on use.

Existing Bus Shelter Featuring Community Art Enhances the riding experience.

Source: University of Kansas

The next chapter provides the vision based on the standards set forth in this chapter.

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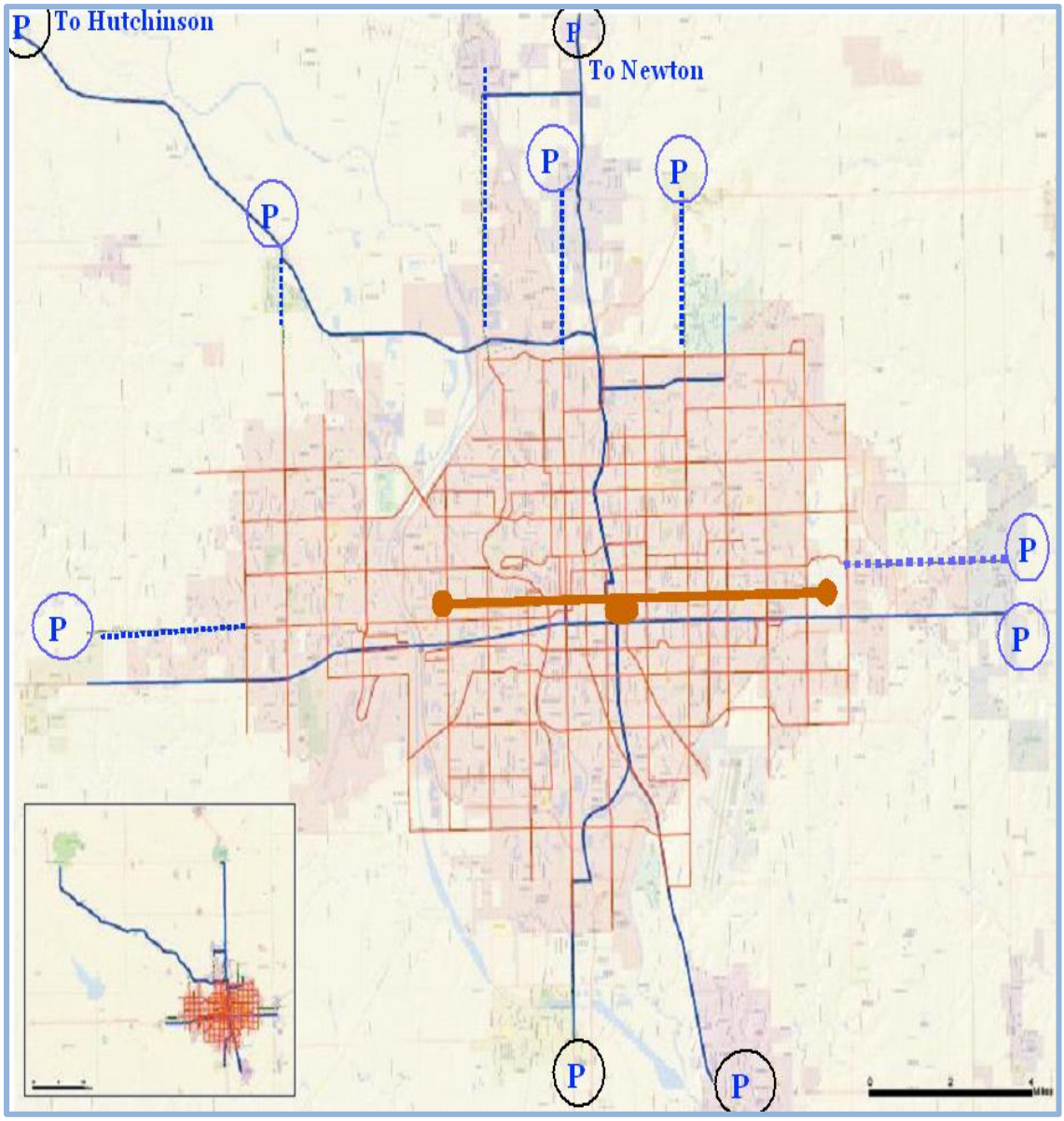
Chapter VI: VISION

A. OVERVIEW OF VISION

The comprehensive vision is a multi-faceted approach to delivering connections throughout and to Wichita. This system goes above and beyond the current system by providing better and more connectivity while simultaneously expanding frequency, hours, and service days. This system will be easy to expand as Wichitans become more accustomed to the service and demand for transit continues to grow in the coming decades.

Figure 38 Vision



B. Components

The City of Wichita

The vision includes a grid network of north/south and east/west transit routes. Routes extend from 119th Street to Greenwich road and from 37th Street north to 55th Street south. They are spaced every half mile (or within an 8 minute walk) in the denser older portions of the city. In lower density area or where there are natural barriers, the routes are spaced approximately every one mile.

Corridor routes operate on major and local streets (Figure 42)

Douglas Avenue Bus Rapid Transit uses a new technology that is being used as an alternative to light rail in many communities. BRT has more flexibility and lower initial development costs. It uses enhanced vehicles with more passenger amenities, well developed stations, frequent service, bus only lanes and traffic signal priority so vehicles go faster. The route connects Towne East shopping center to Towne West shopping center while serving the major employment centers of downtown.

Linking with other communities

Other communities may link into the City of Wichita system in the following ways: By providing their own service or contracting with Wichita Transit to…

Link into grid (Figure 48)

Connect with Commuter express services (Figure 50)

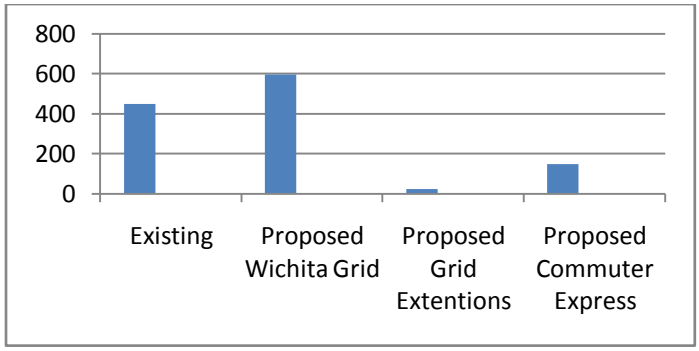
These are services that link to Downtown Wichita. Commuter Expresses Services are designed for workers. They operate Monday through Friday during the peak periods, every 30 minutes. Connections can be made at Park and Ride lots.

P **Park and Ride Lot**

C. Comparison to Existing System

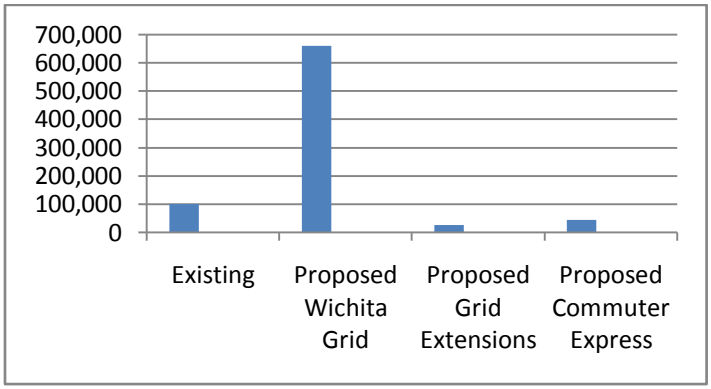
The vision provides both an increase in route miles but more importantly, an increase in effective service hours provided. This is accomplished by replacing the radial system with a grid system and by providing services to surrounding communities. The vision is also designed to increase ridership.

Figure 39 Route Miles – Existing and Proposed Vision



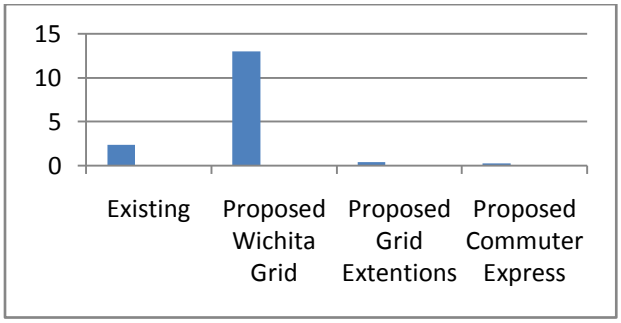
Source: University of Kansas

Figure V: 1 Annual Revenue Hours – Existing and Proposed



Source: University of Kansas

Figure 40 Ridership – Million of Trips Per Year: Existing and Proposed Potential



Source: University of Kansas

D. City of Wichita Detail

1. Grid

The grid is a fixed route network extends from 119th Street to Greenwich road and from 37th Street north to 55th Street south. Routes are described in Figure 41. The grid consists of two general levels of service based on general density standards described in Chapter V and the available street system.

- **Half Mile Grid – The half mile grid is provided in the denser and older portions of the city.** While a half mile grid was the ideal coverage plan, Wichita's grid system as well as natural barriers prevented this from occurring across the whole of Wichita. Cost was another consideration. Included within the half mile grid system is a Bus Rapid Transit BRT routes on Douglas providing fast, convenient service through the heart of Wichita. This route was developed in cooperation with the City's Downtown Master Plan. Corridor routes also provide key access routes across the City and local routes tie into Corridor and the BRT route, filling in the gaps.

- **One Mile Grid – An approximate one mile grid is provided where densities are lower and street spacing wider.**

- Deviations from the Grid - There are a few places that were made to deviate from the grid. While the grid system provides convenience of quick, cross town access, Wichita's development pattern led to better coverage in certain areas by deviation. For example, Kellogg is a state highway, and characterized in the West and East sides by big box development served by one way frontage roads. In general, this type of development is very difficult to serve by transit. With a standard grid, these areas would not be served at all. Attempts were made to deviate nearby routes in order to serve these development areas better, although further attempts may need to be made in the future.

- The following is a comparison to the existing radial system to the proposed grid system within the City of Wichita.

Figure 41 Grid: City of Wichita Route Expansion Comparison

	Proposed	Current (2009)	Increase
Route Miles (Round Trip)	595	450	32%
Revenue Hours	659,928	99,473	563%
Buses (Peak+Spare)	230	53	335%
Operating Expense*	$56,091,000	$10,575,715	430%

**Operating Expenses reflect 2007 Budget*

The routes described in the following were used to calculate cost estimates. Wichita Transit and the community may choose to change these routes as more detailed route planning occurs.

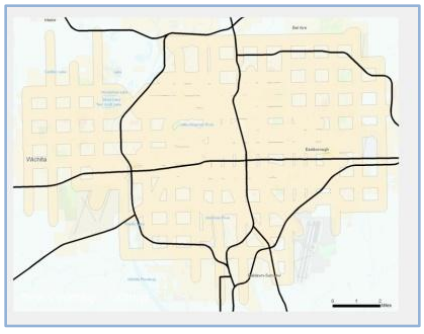
Figure 42 Proposed Routes – City of Wichita

Major Corridors	Local Routes
Douglas	119th
13th	17th
21st	25th
Central	Arkansas-Waco
Harry	Edgemoor
Hillside	Greenwich
Maple	Grove
Meridian	Hydrallic
Oliver	MacArthur
Pawnee	Maize
Rock	McClean
Washington	S. Seneca Tyler
Broadway	Webb
Ridge	West Street
	Woodlawn
	37th
	9th
	Lincoln

2. Service Coverage

An advantage of the grid service coverage is that it provides more direct and effective service as compared to the existing radial system. In the following yellow indicates area within ¼ miles walking distance of routes.

Figure 43 Grid Service Coverage More Effective than Radial System



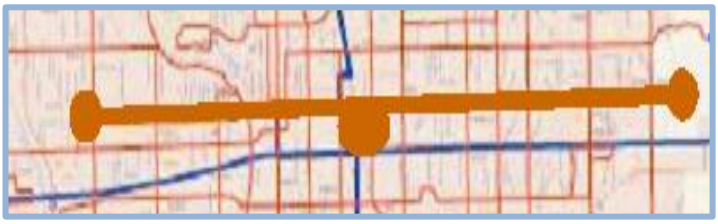
Source: University of Kansas

3. Major Destinations Served

The vision was developed to provide comprehensive services to destinations such as residences, the airport, major universities and human services agencies. The following describes service to major sets of destinations: the Douglas Avenue Corridor, downtown and other major employments centers including the aerospace industry.

Douglas Avenue Corridor

Bus Rapid Transit (BRT) is proposed along Douglas Avenue from Towne East shopping center to Towne West shopping center. Douglas Avenue is the main east-west street through downtown serving major destinations.



New look vehicles are used along Douglas to connect major retail areas of west and east Wichita while still serving the major employment centers of downtown. In this manner, BRT will serve the most possible residents, employers, and retailers. The BRT will provide **for faster service to and from major destinations in the downtown corridor.**

Source: HNTB Corp. System: Euclid Ave, Cleveland

BRT stations enhance the function of the nodes along the Douglas Ave route. In this way it connects a "string of pearls" with the Downtown as the crown jewel.

Source: HNTB Corp. System: Euclid Ave., Cleveland

Figure 44 Bus Rapid Transit Station Example

Stations provide a high level of amenities such as real time information on bus arrival times.

Source: HNTB Corp. System: Euclid Avenue, Cleveland Ohio

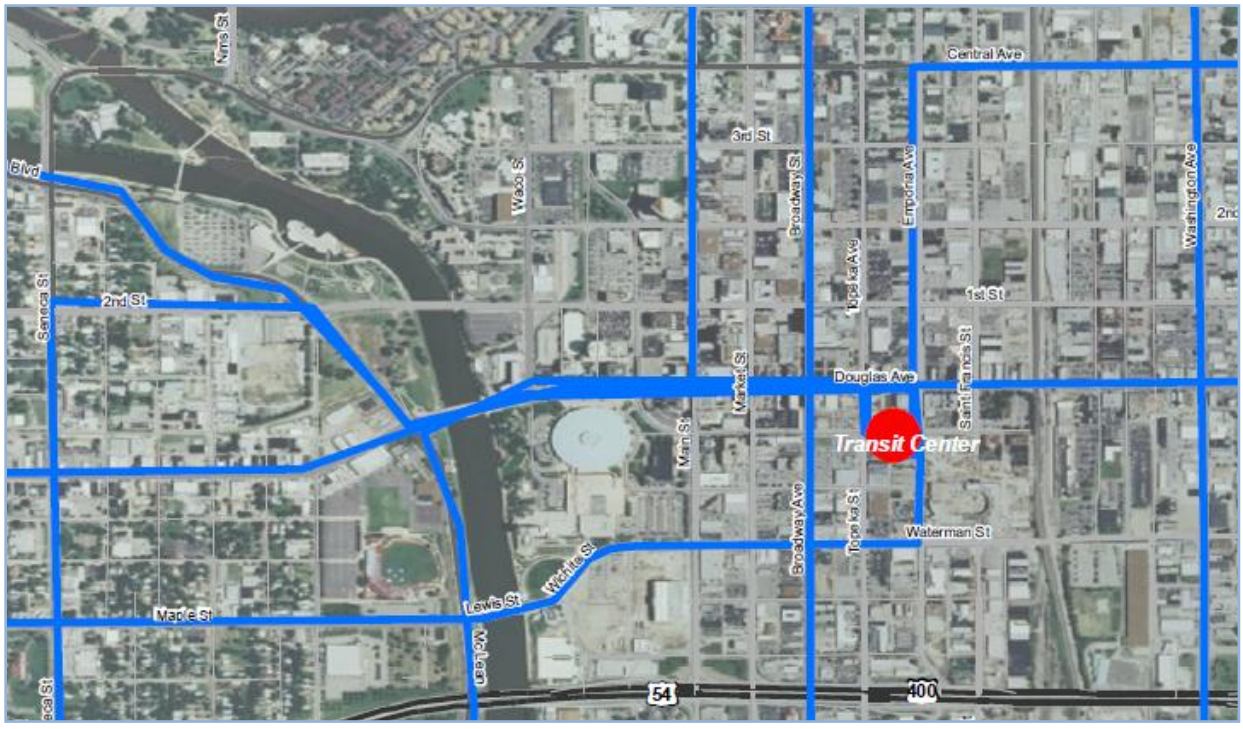
Over time it may be feasible to extend service on the BRT line to the airport. At two miles from the end of the current proposed BRT line, the airport would be a natural extension for eventual dedicated service. There is potential for it to be diverted during special occasions or during peak travel times, as well.

Downtown

The transit vision is designed to both serve and enhance downtown in other ways as well. Downtown remains a dominant employment and activity center hub for the region. The community has an investment in developing the CBD further as evidenced through the recent completion of the Intrust Bank Arena and reinvestment in other amenities such as Old Town and the riverfront. Community responses to public surveys indicate residents of Wichita feel that the Downtown region is a vital link to City of Wichita. A Downtown Master Plan by Goody Clancy of Boston, Massachusetts and Kittleson and Associates is being completed.

The following figure illustrates the route configuration in the Downtown.

Figure 45 Downtown Transit Plan Vision



Source: University of Kansas

The Downtown Transit Center is a key component. The proposed routes within a reasonable distance are deviated to the downtown transit center. It is important for this center to continue to maintain its presence in the heart of Wichita. In particular, those routes which do not have cross town connectivity, such as Maple, terminate at the transit center, providing several opportunities for transfers and continued access in Wichita.

Existing Transit Center Continues to Link Limited Major Routes

Complimenting service will be the downtown circulator, the Q, which, as described below, will augment all incoming cross-town buses to meet the needs of those riding to downtown destinations that are slightly off of the Douglas corridor. The Downtown Master Plan is planning extensions of the existing Q routes that operate during the evening hours. Downtown circulators, which serve residents by providing a faster way to their destination in a defined area, such as the CBD, would meet the standards for providing additional access to users utilizing the downtown transit center, where a BRT line would potentially have a stop. Additionally, commuter express routes from beyond the primary service area would normally have one stop within the CBD, so they need additional service to augment it for CBD destinations that are beyond the area adjacent to the transit center. **It is recommended that the finalized Q route expansions be compared to the Downtown Grid system to determine if there is any overlap. This study has not included any cost estimates for these extensions.**

Wichita's Downtown has the potential to receive new Amtrak service in the near future with the Heartland Flyer. This new line would link Wichita with Newton to the north and Oklahoma City to the south, providing a north-south link between Kansas City and Dallas. The Heartland Flyer Alliance, the group supporting efforts to expand rail service, estimates that Wichita has a chance at being served by Amtrak during the daylight hours. Currently, the railroad operates its Southwest Chief service through Newton and all points in Kansas during the overnight hours**. If this service operates through Wichita at a more "reasonable" hour, Douglas Ave bus rapid transit service may complement passengers departing or arriving in Wichita.**

Other Employment: aerospace and other employment centers

The comprehensive nature of the vision is designed to serve employment centers.

Figure 46 Top Major Employers

COMPANY	PRODUCT	EMPLOYEES
Spirit AeroSystems	Aircraft Parts	10,300
Cessna Aircraft	Aircraft	5,994
USD 259 - Wichita	Public Primary Education	5,543
Hawker Beechcraft	Aircraft	5,300
Via Christi Health	Health Care	5,134
State of Kansas	State Government	3,919
City of Wichita	Municipal Government	3,000
Sedgwick County	County Government	2,929
United States Government	Federal Government	2,881
Boeing Defense, Space & Security	Aircraft Modification	2,500
Bombardier Learjet	Aircraft	2,239
Koch Industries	Mfg, Energy & Commodities	2,100
Wesley Medical Center	Health Care	1,792
Wichita State University	Public Higher Education	1,601
AGCO Corporation	Agricultural Equipment	1,400
Catholic Diocese of Wichita	Primary Education	1,399
USD 260 - Derby	Public Primary Education	1,058
Johnsons Controls - York Wichita	Residential HVAC Equip.	1,100
Robert J. Dole VA Medical Center & Regional Hospital	Health Care	1,000
Wichita Clinic PA	Health Care	992
Cox Communications	Broadband Communications	873
Cargill Meat Solutions	Meat Products	844
The Coleman Company	Recreational Products	814

Source: Wichita Chamber of Commerce

Route Frequencies and Service Span

Figure 47 Route Frequencies and Service Span by Service Type

	Corridor	BUS Rapid Transit	Local
SERVICE SPAN			
Mon – Friday	5 am – 10 pm	5 am – 10 pm	5 am - 8pm
Saturday	5 am – 10 am	5am - 10pm	6am - 8pm
Sunday	6 am – 6 pm	6am - 6pm	Not Available
FREQUENCY	Monday-Friday	Monday-Saturday	Monday-Fri
Early Morning	5 am-6 am 30 min	5 am-6 am 30 min	5 am-6 am 30 min
AM Peak	6 am-9 am - 15 min	6 am-9 am - 10 min	6 am-9 am - 15 min
Midday	9 am-3 pm: 30min	9 am-3 pm: 15 min	9 am-3 pm: 30 min
Evening	6 pm-10 pm: 30 min	6 pm – 10 pm: 30 min	6 pm-8 pm: 30 min
PM Peak	3 pm-6 pm: 15 min	3 pm-6 pm: 10 min	6 pm-8 pm: 30 min
	Sunday	Sunday	Sunday
All Day	6 am-6 pm: 60 min	6 am-6 pm: 60 min	Not Available

E. Links to Adjacent Cities

It is anticipated that Cities adjacent to the City of Wichita may want to participate in the vision presented here. Indeed, some are part of the urbanized area.

These cities, if they chose to opt into a funding planning could be linked in two general ways via a transit center (option A) or by a route than changes to limited shop service at the City of Wichita border (Option B).

Figure 48 Grid Extensions to Adjacent Municipalities

Adjacent Municipalities	Routes
Andover	East Central Avenue
Bel Aire	North 63rd Street
Derby	Southeast Boulevard
Goddard	West Maple Street
Haysville	South Broadway Avenue
Kechi	North Oliver Street
Maize	103rd Street
Park City	North Broadway Street
Valley Center	North Meridian Street

Source: University of Kansas

It is estimated that if each city participated it would potentially add over 175,000 annual trips to the system.

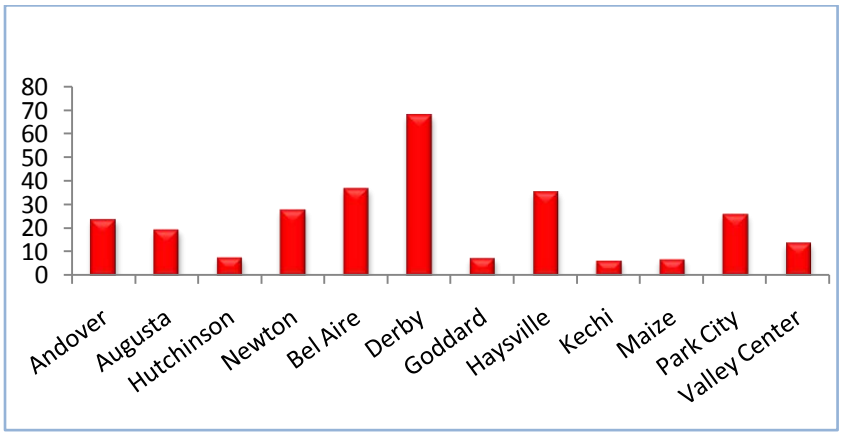
F. Commuter Express Routes to Wichita Central Business District

The commuter service vision facilitates peak hour commuting between Wichita and surrounding communities. Wichita sits within a large trade area that encompasses a population of more than 1 million people within a 100-mile radius and the city is a regional center for south central Kansas making it a destination for commuters from the surrounding communities.

The following table describes the estimated number of potential commuter transit trips between surrounding cities and the City of Wichita. The following cities have the greatest potential: Derby with a potential of an estimated 70 riders per day, Bel Aire and Haysville with 40 riders per day, and Newton with an estimated 30 riders per day.

Since a large bus carries 35 seated passengers, express bus service would be warranted at this time. The other communities could be served by small bus, or car/van pools.

Figure 49 Estimated Transit Commuters Between Wichita CBD and Surrounding Cities



Source: University of Kansas, calculation based on US Census, Journey to Work data, assumes 10 % mode share for public transit.

Figure 50 Commuter Candidates by Location

Municipality	**Express Commuter Routes**	
	(Option C)	Freeway
Andover	East Kellogg Express	400/54
Augusta	East Kellogg Express	400/54
Bel Aire	Northeast Express	254/135
Derby	Derby Express	15/135
Goddard	West Kellogg Express	400/54
Haysville	Haysville Express	35/135
Hutchinson	Northwest Express Line	96/235/135
Kechi	Northeast Express	254 /135
Maize	Northwest Express Line	96/235/135
Newton	Newton Express	135
Park City	Newton Express	135
Valley Center	Newton Express	135

Source: University of Kansas

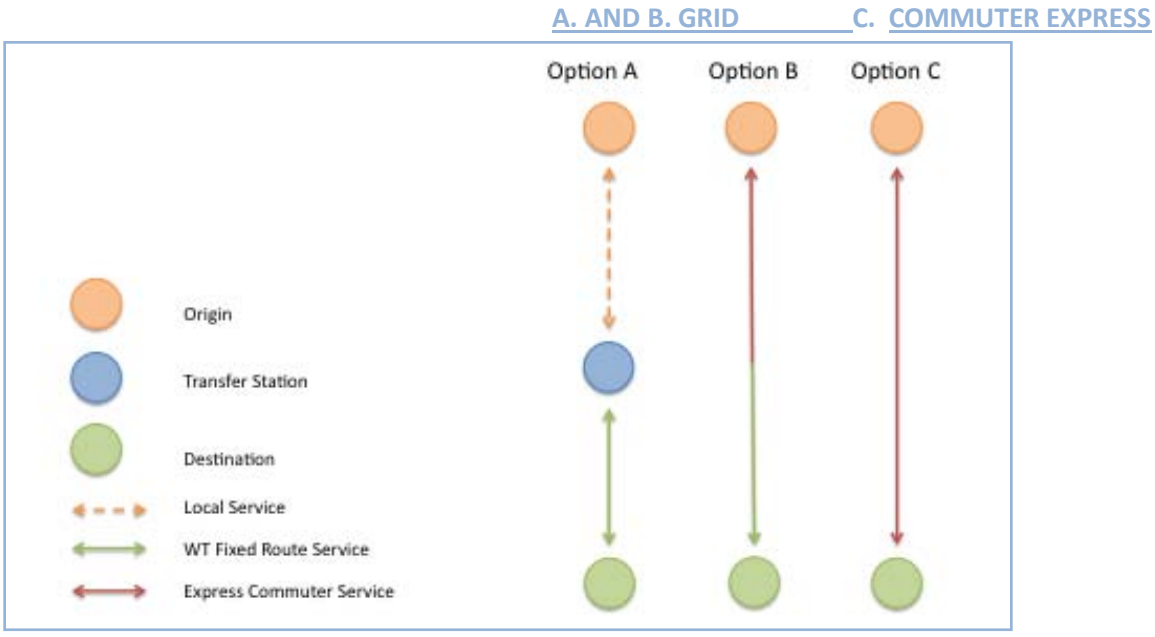
G Options for Other Communities to Link In

Three options are recommended for providing surrounding communities with commuter service. The following figure illustrates those options.

Option A and B: Other communities provide support for their own link to the Grid. This can be accomplished at transfer station (Option A) or as an extension of the grid service that would transition to limited stop service to the added community (Option B).

Option C: provides express commuter service from the surrounding municipalities directly into the Wichita CBD using major thoroughfares.

Figure 51 Options for Linking Other Communities to the City of Wichita Grid



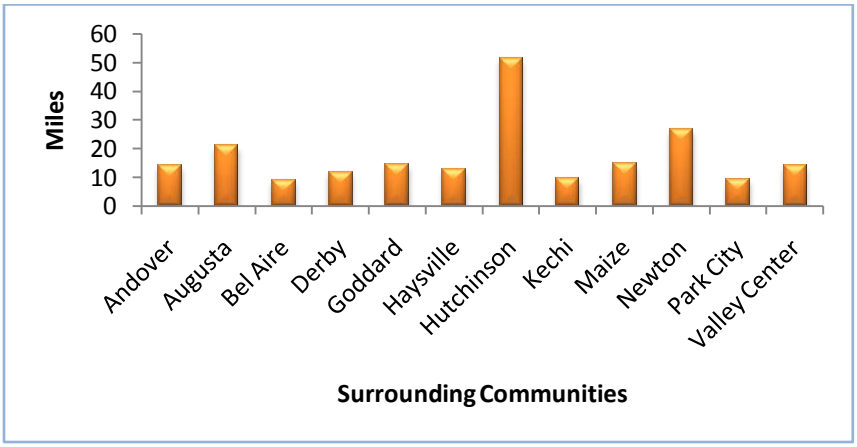
Contracting Arrangements (Pay to Play)

Under this plan the City of Wichita and the surrounding municipalities can provide commuter service depending upon fund availability, commuter ridership, and commuter corridor standards. Some areas are best served by Options A or B, while other areas are better suited for Option C, and there are other areas that have the potential to be connected into the grid under Option A or B and have express service under Option C. Using the standards and criteria for commuter service described in preceding chapters Wichita Transit can evaluate and prioritize commuter service routes.

The two standards that provide the best analysis for assessing potential commuter service are trip length and traffic volume. Longer trips indicate that a passenger must commute to their destination and trips that are between 10 and 30 miles demonstrate the highest potential for

commuter travel. Trips less than 10 miles are too short for express service and trips greater than 30 miles do not provide a sufficient number of commuters to support commuter service. The following figure shows the distance in miles from the surrounding communities to the Wichita CBD.

Figure 52 Distance from Surrounding Cities to Central Business District CBD



Source: University of Kansas

Trips from Bel Aire, Hutchinson, Kechi, and Park City fall outside of the prescribed distance. This does not mean that these areas do not have commuters or need commuter service, it just means that they might be better served using alternatives to express bus service. For Hutchinson a vanpool service would be more appropriate. For Bel Aire, Kechi, and Park City service Options A or B can be used to connect these areas into the City of Wichita Grid.

Commuter traffic volume can also be used to assess potential corridors. Corridors with the greatest traffic volume counts will indicate the most appropriate routes. This study used journey to work census data to evaluate the routes with the greatest amount of travel going into the CBD. Figure 49 describes the expected commuter ridership numbers going from the surrounding areas into the CBD. This graph should be used to evaluate potential service under Option C. Ridership to Hutchinson and Newton may not yet be warranted for commuter express bus.

Service Frequency and Service Span

Under all potential commuter service options service span will be Monday through Friday from 6a.m. to 9a.m. during the peak a.m. period and from 4p.m. to 7p.m. during the peak p.m. period. Frequencies will be every 30 minutes.

Ridership Potential

Commuter Express ridership potential is estimated at 310,000 trips per year.

H. Facilities: Recommended Improvements

1. Bus Facilities, shelters and bus rapid transit

Figure 53 Improvements: Bus Facility, Shelters and BRT

Facilities			
	Cost per Unit	**Qty**	**Total**
Bus Facility (300 Bus Capacity)		*estimated*	$30-45 Million
Shelters	$10,000	600	$6,000,000
Bus Rapid Transit			
	Cost per Mile	**Miles**	**Total Cost**
Right of Way, Shelters, Signal Priority	$3,000,000	9.49	$28,458,000

Source: University of Kansas

2. Park and Ride Lots

Park and ride lots should be placed at the last stops of major corridors and in the surrounding communities that will be served by express commuter service. Park and ride lots play an important role in multimodal transportation systems. They allow people to connect into the transportation system without having to drive along congested corridors or pay high parking costs associated with parking in the CBD. Park and ride facilities are meant for people who do not have ideal public transportation from their home because of their location, the time it would take, or the hours they work. Park and ride lots create a catchment area that allows commuters to connect into the local transportation system.

I. Operation Changes for Efficiency and Consumer Service

1. ITS

Traffic signal priority technology uses sensors to detect approaching transit vehicles and alter signal timings to improve transit performance, for example, extend the duration of green signals for public transportation vehicles.

Since Wichita is currently planning to update its entire traffic signal system, traffic signal priority for transit will be recommended after the update is completed. Electronic employee ID cards aid in control access and help maintain the security of public transportation management and support facilities.

2. Bus stops and shelters

Bus stop spacing

Six to eight stops per mile is recommended. Longer stop spacing is appropriate for limited-stop and express services.

Figure 54 Recommended Bus Stop Spacing

Environment	Spacing range (ft)	Typical spacing (ft)
Central core areas of CBDs	300 – 1000	600
Urban areas	500 – 1200	750
Suburban areas	600 – 2500	1000

Source: TCRP Report 19: Guidelines for the Location and Design of Bus Stops

Passenger benches

Bus stop benches should be installed at sites that are frequently used by elderly people or people with disabilities, and sites where evidence shows that passengers are sitting or standing on nearby land or structures. Coordinate bench locations with existing shade trees and streetlights if possible.

Benches provide customer comfort

Source: University of Kansas

Shelter locations

Existing Shelter Provides Customer Amenities

Photo: University of Kansas

Suggested boarding levels by area type used to decide when to install a shelter are:

- 10 boarding's per day in rural areas;
- 25 boarding's per day in suburban areas; and
- 50 to 100 boarding's per day in urban areas.

Source: TCRP Report 19: Guidelines for the Location and Design of Bus Stops

The number of elderly or physically challenged individuals in the area should also be considered.

Bus Sign information

Bus stop signs should include transit system logo/name, transit information telephone number, names of streets and landmarks where bus stop is located, and route number(s) serving the bus stop. A headways/schedule sign should be posted under the bus stop sign where budgets and space permit.

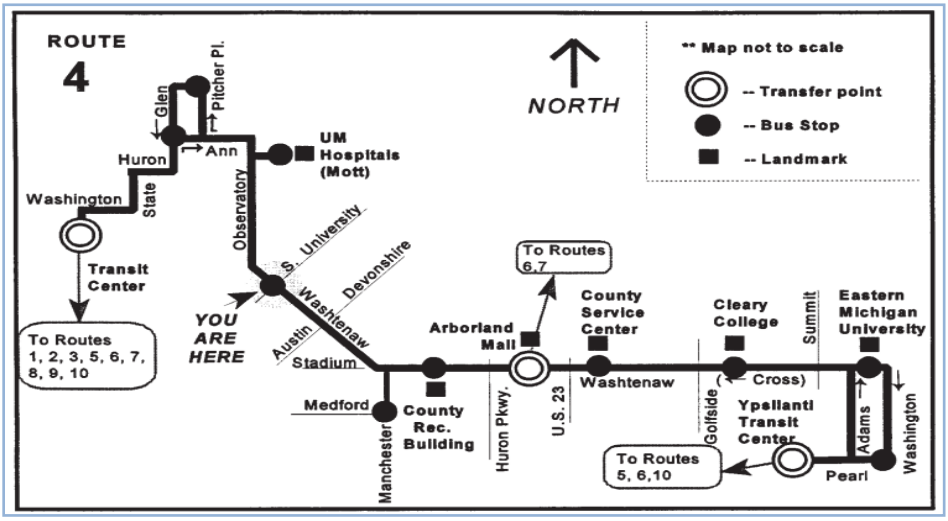
Figure 55 Recommended Bus Stop Sign Example

Source: TCRP Report 45: Passenger Information Services: A Guidebook for Transit Systems

Wall-mounted system maps should be placed at bus terminals and bus stop shelters. They should look identical to the printed system map, except for size and the addition of a “You Are Here” locator symbol. A number should be used to identify transit routes. The route name should be used in system maps, on signs, and by telephone information operators or recordings along with the route number.

A bus header/identification sign is mounted on the bus, in static or electronic form, to identify the route number and name and, if applicable, the direction in which the bus is traveling. The sign should be visible to passengers waiting at the bus stop. A printed system map should show and label all major elements of the transit system; including routes, major transfer points, and transfer centers. In addition, enough topographical information should be shown to assist the rider in orienting him or herself within the transit system and the city. A map legend and instructions on using the map should be included. A single-route map sign can provide useful information to a rider arriving at the bus stop, at the beginning of a bus trip, or transferring from one bus to another. This sign could be posted under the bus stop sign. A single-route map should include route number, illustration of the route, including major streets that the route travels on or intersects, bus stops and transfer points, “You Are Here” label, and major landmarks the route serves.

Figure 56 Recommended Single-Route Map Example



Source: TCRP Report 45: Passenger Information Services: A Guidebook for Transit Systems

3. Curbside bus stop zone dimensions.

Minimum 100 ft no-parking zone at near-side stops (immediately prior to an intersection); minimum 90 ft no-parking zone at far-side stops (immediately after passing through an intersection).

4. Web site

Information

Other information affecting transit service is route number, final destination, and key destinations at the next stop. Information less likely to be provided includes the names of several upcoming stops and arrival times of connecting routes. Emergency messages and paid advertising would also be useful. Schedules, maps, and other service-related information is the most-used information on transit websites. Keys to site navigability are:

- Put important information at the top of the page.
- Group related information while giving the greatest visibility to the information used most frequently.
- Use terminology that visitors readily relate to their needs.
- Format information for scanability.
- Place logos, recurring text, buttons, and graphics at the same place on each page.
- Minimize scrolling and place key content “above the fold” so that it appears on the screen when the page is first viewed.

Interactive Route Planning

Google Transit is a public transportation-planning tool that combines the latest agency data with the power of Google Maps. It integrates transit stop, route, schedule, and fare information to make trip planning quick and easy for millions of Google users, using a common and familiar interface.

The result is a route map, with bus times, travel time and gas savings. This can lead to increased ridership by attracting new riders who have never considered transit before and by helping seasoned riders to learn new routes that they are unfamiliar with. In addition, it is free.

Transit agencies may also use text message, email, and Twitter to disseminate service information and response to customer request in real time.

5. Sale of transit passes

The sales of transit passes should convenient both onboard on at transit stops, stations and other locations.

6. Automated announcement systems.

Provide next-stop information and information about connecting routes at key transfers points and are the most frequently provided types of information.

7. System and Route branding

Branding is a very effective strategy that allows the easy identification and promotion of the transit system and specific routes.

Figure 57 Aviation as Branding Tool Example

It is suggested that the vision be further refined by a comprehensive marketing strategy. For example, one suggestion that could be considered would be to build on Wichita's aerospace history with an aviation theme. The logo in the following exhibit from Edinburgh uses an aviation theme. This is but one of many possibilities.

Source: Edinburgh System

Branding themes can be carried in brochures, stops, other marketing and can help passengers understand route systems and their wayfinding.

Figure 58 Route Branding Examples

Source: Edinburgh System

8. Guaranteed Ride Home

A trend in other cities that have a robust transit system is the Guaranteed Ride Home (GRH) Program. The Kansas City Area Transportation Authority for example provides this service. Registered riders with transit passes are allowed four free rides on transit, taxi, or rental cars, when they experience an emergency that requires them to leave the office early or to work overtime. This would be especially beneficial for workers who miss the final bus trip of the evening when they live on a limited local route, for instance.

The next chapter describes the cost and benefits of the proposed vision.

Chapter VII: COSTS AND BENEFITS

The bold new vision for Wichita Transit fixed route expansion presented in Chapter VI will require a commitment from community leaders and residents. Wichita Transit cannot deliver expanded service and wider reaching routes without incurring increased costs to deliver and operate the service.

A. COST

1. Summary

This bold new vision will require a financial commitment from Wichita residents. Expansion of service span, frequencies and routes will require additional buses, facilities and personnel. Bus Rapid Transit implementation will require right of way acquisition, buses and shelter/station construction.

The vision

- Starts with increases in route miles (33% more)
- Expands the available span of service to run from 5 am to 10 pm Monday through Saturday and begins Sunday service 6 am to 6 pm and
- Increases service frequencies system-wide with stops as frequent as every 10 minutes on high traffic corridors.

In the City of Wichita:

Expansion in service area, frequency and span will require initial capital investments estimated at $145-160 Million including:

- Increase in buses to serve the routes, an estimated $78.5 Million.
- A new facility to house those buses is estimated to cost between $30-45 Million.

Annual operating costs and capital costs will also increase with expanded service. **The vision is estimated to cost $56 Million annually to operate with $5.5 Million in annual capital expense. The combined $61.5 Million in necessary operating revenues exceeds current funding for operations by $50 Million.**

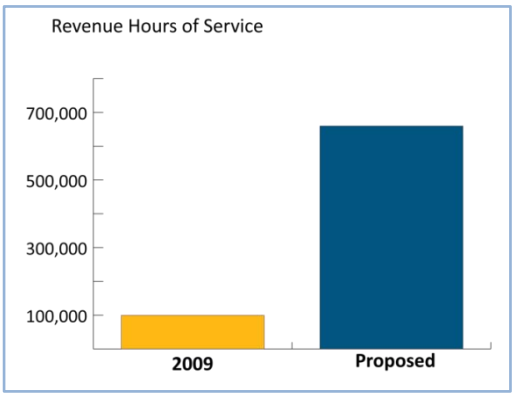
In surrounding communities choosing to join in:

Extension of the service grid to external communities is estimated cost $7 Million in initial capital and $2 Million to operate while proposed commuter routes would require $12 Million in initial capital and $4 Million to operate.

2 City of Wichita – Grid System

Figure 59 Hours of Service: Today and Proposed

Before examining funding strategies and public outreach Wichita Transit must determine the costs of service expansion. The grid vision presented in VI will increase route miles by more than 30% to nearly 600 round trip miles.



Source: 2009 data Wichita Transit
Proposed: University of Kansas

Expanded routes increase connectivity but the new vision does not stop there. **Service spans are increased to 5 am to 10 pm Monday through Saturday and with added Sunday service from 6 am to 6 pm.** Service frequency are expanded to encourage transit ridership. Expanded routes, frequency and hours increase the total revenue hours for Wichita Transit more than fivefold from approximately 100,000 revenue hours to an estimated 660,000. With more service hours, higher frequency service and more route miles the system will need more buses and additional facilities to house them and an increased operating budget to deliver and administer new service. Initial capital costs for the system improvements are estimated from $145 – 160 Million with annual operating and capital costs $61 Million.

Wichita Transit currently receives a total of $11.5 Million in revenues from fares and City, State and Federal sources, leaving a nearly $50 Million gap. **Fares would increase with increased service. A fully allocated service (3-5 year horizon) could expect to collect between $5-7 Million at Wichita's current farebox recovery rates, doubling or even tripling fares**. Increased fare revenues will help fund the dramatic vision but will only have a small impact on new system operating costs.

Figure 60 Grid: City of Wichita Route Expansion Comparison

	Proposed	Current (2009)	Increase
Route Miles (Round Trip)	595	450	32%
Revenue Hours	659,928	99,473	563%
Buses (Peak+Spare)	230	53	335%
Operating Expense*	$56,091,000	$10,575,715	430%

**Operating Expenses reflect 2007 Budget*

Operating Cost Calculations

The KU team developed a model to estimate the costs associated with service expansion to meet the new Wichita Transit vision. The model examined the revenue hours and layover time required to deliver service on each new route as determined by the average bus speed on the route and route length. With an estimate of the time necessary to serve one route with one bus the team could determine the number of buses necessary to serve each route with the desired frequencies in the early morning, AM peak, midday, PM peak and evening hours.

After determining the number of buses required, the team developed revenue hour estimates for each route and the system as a whole. The team used Wichita Transit's historical operating cost per revenue hour ($85/hour) to estimate the total cost to deliver service for each route and develop an estimate for the entire system vision. The following figure details the length and classification of each new route, annual revenue hours, estimated costs and an estimate for ridership when the system is fully allocated and understood by the rider public – a period of 3 to 5 years. To produce ridership estimates the team used current Wichita Transit riders per revenue hour (approximately 10 riders per hour on local routes, 30 riders per hour on corridor routes and projected 40 riders hour on high-capacity Bus Rapid Transit).

Service expansion to these levels would require annual operating revenues of $56 Million and provide a significant change in the delivery of transit in Wichita. **Available revenue hours would expand from 100,000 to 660,000 with the number of buses increasing from 53 to 240** (including BRT). With this new vision Wichita Transit buses will provide service over a longer span, at greater frequency and serving a larger area with fewer transfers.

Figure 61 Grid: City of Wichita -- Route Cost Calculations

Name	Type	One-Way Length	Avg. Speed	Annual Hours	Annual Cost	Annual Riders	Peak Vehicles
Douglas	BRT	9.49	**18.0**	27,759	$2,360,000	1,110,360	8
13th	Corridor Connector	15.87	**15.0**	34,065	$2,896,000	1,021,950	10
21st	Corridor Connector	15.66	**15.0**	34,065	$2,896,000	1,021,950	10
Central	Corridor Connector	16.00	**15.0**	34,065	$2,896,000	1,021,950	10
Harry	Corridor Connector	10.74	**15.0**	25,090	$2,133,000	752,700	7
Hillside	Corridor Connector	9.08	**15.0**	20,755	$1,764,000	622,650	6
Maple	Corridor Connector	11.42	**15.0**	25,090	$2,133,000	752,700	7
Meridian	Corridor Connector	9.36	**15.0**	20,755	$1,764,000	622,650	6
Oliver	Corridor Connector	10.09	**15.0**	25,090	$2,133,000	752,700	7
Pawnee	Corridor Connector	14.77	**15.0**	32,535	$2,765,000	976,050	9
Rock	Corridor Connector	8.04	**15.0**	19,225	$1,634,000	576,750	5
Washington	Corridor Connector	9.09	**15.0**	20,755	$1,764,000	622,650	6
119th	Local	4.98	**15.0**	11,438	$972,000	114,380	4
17th	Local	7.23	**15.0**	15,991	$1,359,000	159,910	5
25th	Local	10.83	**15.0**	21,346	$1,814,000	213,460	7
Arkansas-Waco	Local	5.22	**15.0**	11,438	$972,000	114,380	4
Edgemoor	Local	3.99	**15.0**	9,908	$842,000	99,080	3
Greenwich	Local	6.09	**15.0**	11,438	$972,000	114,380	4
Grove	Local	7.47	**15.0**	15,991	$1,359,000	159,910	5
Hydrallic	Local	6.86	**15.0**	15,991	$1,359,000	159,910	5
MacArthur	Local	9.45	**15.0**	17,521	$1,489,000	175,210	6
Maize	Local	9.32	**15.0**	17,521	$1,489,000	175,210	6
McClean	Local	7.28	**15.0**	15,991	$1,359,000	159,910	5
S. Seneca	Local	6.81	**15.0**	15,991	$1,359,000	159,910	5
Tyler	Local	5.72	**15.0**	11,438	$972,000	114,380	4
Webb	Local	7.30	**15.0**	15,991	$1,359,000	159,910	5
West Street	Local	6.84	**15.0**	15,991	$1,359,000	159,910	5
Woodlawn	Local	7.10	**15.0**	15,991	$1,359,000	159,910	5
Looped Routes							
Name	**Type**	**Full Route Length**	**Avg. Speed**	**Annual Hours**	**Annual Cost**	**Annual Riders**	**Peak Vehicles**
Broadway	Corridor Connector	23.91	**15.0**	26,620	$2,263,000	798,600	8
Ridge	Corridor Connector	15.24	**15.0**	19,225	$1,634,000	576,750	5
37th	Local	16.64	**15.0**	17,521	$1,489,000	175,210	6
9th	Local	13.67	**15.0**	15,991	$1,359,000	159,910	5
Lincoln	Local	21.52	**15.0**	21,346	$1,814,000	213,460	7
	Totals	595.2		659,928	$56,091,000	14,178,750	192
		Full Route Miles		**Annual Revenue Hours**	**Annual Cost**	**Annual Riders**	**Peak Vehicles**

Source: University of Kansas

Capital Costs

Service Expansion to meet the new vision for Wichita Transit will require a significant capital investment in addition to the operating cost increases discussed earlier.

The cost model above allowed the team to estimate the number of buses required during peak operating periods for local and corridor service as well as Bus Rapid Transit. The Federal Transit Administration (FTA) requires transit agencies maintain no more than a 20 percent spare ratio over the buses required for peak service. Total rolling stock necessary to serve the new vision includes 10 stylized BRT buses and a total of 230 (177 new) standard 35', 37' or 40' buses similar to Wichita Transit's current stock. Capital costs for increasing Wichita Transit's fleet of buses to meet envisioned service expansion would require $73 Million for standard buses and $5.7 Million for stylized BRT buses that develop brand identity for the service. Bus Rapid Transit facilities including right of way improvements, signal priority, specialized stations, shelters and fare collection are estimated to require aggregate capital costs similar to Kansas City's new BRT expansion on Troost Avenue, $3 Million per mile. Wichita BRT construction is estimated to cost $28.5 Million.

Figure 62 Anticipated Capital Expenses

Rolling Stock			
	Cost per Unit	**Qty**	**Total Cost**
Standard Bus	$410,000	177	$72,734,000
Stylized BRT Bus	$600,000	10	$5,760,000
		Rolling Stock Total:	$78,494,000
Facilities			
	Cost per Unit	**Qty**	**Total**
Bus Facility (300 Bus Capacity)		*estimated*	$30-45 Million
Shelters	$10,000	600	$6,000,000
Bus Rapid Transit			
	Cost per Mile	**Miles**	**Total Cost**
Right of Way, Shelters, Signal Priority	$3,000,000	9.49	$28,458,000
Annual Capital Expenses			**Annual**
10% of Operating Costs			$5,609,100

Source: University of Kansas

Wichita Transit currently operates at capacity in its fixed route storage and maintenance facility. Any increase in rolling stock requires the construction of a new bus facility. The following figure also shows an estimated cost for a bus facility large enough to accommodate all current rolling stock and more buses for expansion. The addition of new bus shelters to the envisioned routes provides a simple and cost-effective method for increasing the visibility of Wichita Transit's service expansions. Lastly, Wichita Transit must budget for annual capital

costs. Industry standards require approximately 10 percent of annual operating costs for capital budgets.

3. Grid Links to Adjacent Cities

Grid services provide local bus routes that connect into the proposed Wichita Transit grid. Communities may choose to "Pay to Play"

Figure 63 Costs for other Communities to Connect

Name	Type	Length	Avg. Speed	Annual Hours	Annual Cost	Annual Riders	Peak Vehicles	Bus Cost
Valley Center - Grid	Local	5.02	15	2,550	217,000	17,850	2	820,000
Park City - Grid	Local	3.01	15	3,060	260,000	21,420	2	820,000
Kechi - Grid	Local	3.01	15	4,590	390,000	32,130	3	1,230,000
Bel Aire - Grid	Local	0.98	15	1,530	130,000	10,710	1	410,000
Andover - Grid	Local	3.96	15	3,060	260,000	21,420	2	820,000
Derby - Grid	Local	3.09	15	3,060	260,000	21,420	2	820,000
Haysville - Grid	Local	3.03	15	3,060	260,000	21,420	2	820,000
Goddard - Grid	Local	3.95	15	3,060	260,000	21,420	2	820,000
Maize - Grid	Local	1.14	15	1,530	130,000	10,710	1	410,000
Totals		27.20		25,500	$2,167,000	178,500	17	$6,970,000

Source: University of Kansas

4. Commuter Express to Surrounding Communities

The following figure details the cost to deliver each commuter route. Express services connect the city directly to the downtown Wichita Transit Center with limited-stop service. Communities may choose to "Pay to Play".

Figure 64 Costs for Commuter Express to Surrounding Communities

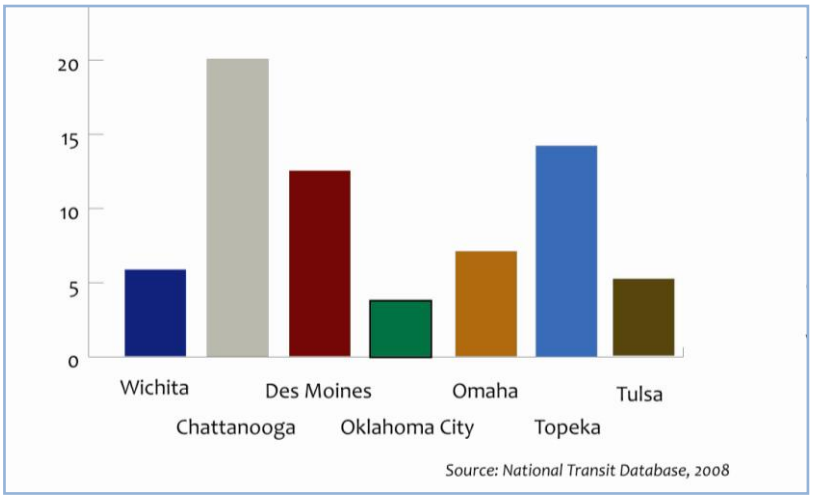
Name	Type	Length	Avg. Speed	Annual Hours	Annual Cost	Annual Riders	Peak Vehicles	Bus Cost
North Express	Commute	13.43	25	4,590	390,000	32,130	3	1,230,000
Northeast Express	Commute	9.82	25	3,060	260,000	21,420	2	820,000
East Kellogg Express	Commute	11.60	25	4,590	390,000	32,130	3	1,230,000
West Kellogg Express	Commute	12.70	25	4,590	390,000	32,130	3	1,230,000
Haysville Express	Commute	10.87	25	4,590	390,000	32,130	3	1,230,000
Derby Express	Commute	11.09	25	4,590	390,000	32,130	3	1,230,000
Newton Express	Commute	16.46	25	4,590	390,000	32,130	3	1,230,000
Northwest Express	Commute	48.81	35	9,180	780,000	64,260	6	2,460,000
Maize Express	Commute	14.50	25	4,590	390,000	32,130	3	1,230,000
Totals		149.28		44,370	$3,770,000	310,590	29	$11,890,000

Source: University of Kansas

B. Benefits of Transit

An efficient and well-designed transit system links large and small communities in ways that other modes of transportation cannot. As discussed previously, public transit delivers freedom and mobility to a great many people without other means of transportation. But public transit is not simply for those without cars or those unable to drive them. Effective transit can improve a region's economy and environment, **enhances a community's quality of life and reduces national dependence on foreign oil**. Wichita public transit provided more than 2.5 Million unlinked trips in 2008, on par with similar cities but lagging behind others on a per capita basis. Expanded service in Wichita can serve increased demand for transit while benefiting the local economy, improving the environment and enhancing local quality of life.

Figure 65 Peer City Per Capita Passenger Trips



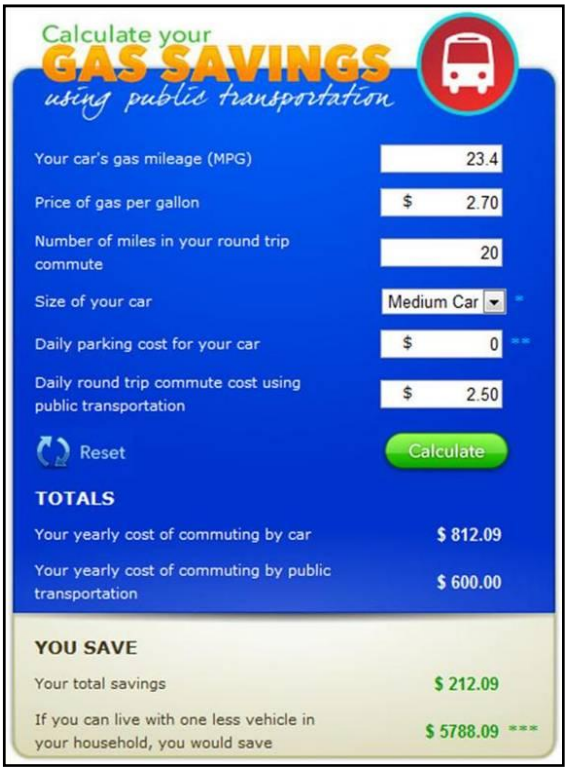
1. Economic Benefits

The American Public Transportation Association (APTA), a transportation advocacy group, studies national transit trends. APTA reports that investment in public transit not only creates jobs in transit but provides an economic multiplier effect through the entire local economy. APTA studies have shown **that every $1 invested in public transit generates $4 in total economic returns and every $10 Million in capital investment in transit can return up to $30 Million in business sales alone** (APTA, 2010).

APTA also issues a monthly report that examines the amount individuals can save by riding transit rather than relying on automobile travel. The report uses AAA estimates for national gas prices (in March 2010, $2.70), transit fares and the cost of parking along with AAA estimates on auto mileage (in March 2010, 23.4 mpg) and ownership cost to determine that the average American could save more than $6,000 per year by relying on transit rather than personal cars.

APTA also developed a calculator to estimate personal savings. Because Wichita commuters often experience little or no parking costs, a calculation with Wichita Transit fares and zero daily parking cost reveals **Wichita residents could save $6,000 per year by relying on transit** (see following figure) . Individuals working downtown who must pay for parking will experience even greater savings.

Figure 66 Transit Savings Trip Calculator



Source: American Public Transit Association APTA

2. Energy and Environment

A well used public transportation system reduces the amount of energy consumed and pollution emitted by each traveler. The City of Wichita must comply with the U.S. Environmental Protection Agency revised National Ambient Air Quality Standards for Ozone. A commitment to transit reduces greenhouse gas emissions and **helps Wichita avoid designation as an EPA nonattainment area.** APTA reports that individual use of public transportation on a 20 mile commute reduces $C0_2$ emissions by 4,800 pounds per person per year. APTA further states "expanded public transit strategies coordinated with combining travel activity, land use development and operational efficiencies can reduce greenhouse gases by 24 percent."

APTA's studies have determined that household residents living near transit drive an average of 4,400 fewer miles annually and, according the Texas Transportation Institute (TTI) report on

congestion save 398 Million gallons of fuel annually (APTA, 2010; Urban Mobility Report, TTI, 2009). TTI studied Wichita congestion and determined that Wichita is one of the least congested large cities in the United States, still TTI reported that congestion cost Wichitans $28 Million in 2007 (TTI, 2009). Expansion of transit availability and accessibility in Wichita will reduce emissions and energy consumption and save money.

3. Quality of Life

Investment and expansion of public transportation enhances the quality of life for Wichita residents and makes Wichita a more attractive tourist destination. Safe, reliable and efficient transit provides mobility for workers without cars or the ability to operate them. APTA reports that "81% of older Americans say that public transit provides easy access to the things they need in everyday life." (APTA. 2010).

Wichita Transit delivers mobility to those who need it most. **The challenge for Wichita Transit is to improve quality of life and present an attractive transportation option to those who do not depend on transit, so called "choice riders."** Choice riders do not depend on transit and therefore require providers like Wichita Transit to deliver service that approaches the convenience and freedom of the automobile. By expanding service coverage areas and, especially, by increasing the frequency of service choice riders are more inclined to consider public transit as an option. The whole community benefits when transit coverage and frequency increases.

The next chapter explores funding options and details funding strategies available to Wichita Transit.

Chapter VIII: FUNDING

A. Summary

Wichita's limited financial resources has restricted its ability to expand service. Over the past several years Wichita Transit has secured Federal grants for facilities, rolling stock and other capital improvements but lacks financial control of a dedicated revenue stream to provide the necessary matching funds to take advantage of those grants and increase facilities, buses and service. Without increases in service, new buses and facilities make little difference to transit riders. Wichita needs additional operating revenue to take advantage of capital grants and expand service span and frequency.

Over the past several years Wichita Transit has secured Federal grants for facilities, rolling stock and other capital improvements but lacks the financial control of a dedicated revenue stream to provide the necessary matching funds to take advantage of those grants and increase facilities, buses and service. Without increase in service new buses and facilities make little difference to transit riders. Clearly Wichita needs additional operating revenue.

The vision for transit will generate additional fare revenues by serving more riders, but additional revenue streams are needed to deliver the dramatic service expansion proposed and provide $145 Million in initial capital costs and address the annual $50 Million operating gap.

This chapter includes a full inventory of potential funding resources. Two major sources include the following:

- **Initial capital costs may be shared with Federal Transit Administration New Starts or American Recovery and Reinvestment Act grants** – these grants require 20-50% local matching commitments.

- **The most popular, stable and highest yielding funding mechanism for transit operations nationwide are sales taxes.** Residents have indicated they would support a tax to improve transit in Wichita. A one cent sales tax to fund the construction of the Intrust Arena generated $70.6 Million in revenue from sales in the Wichita city limits in 2008. The consideration of a city-wide or county-wide sales tax is proposed. This would be at a fraction of one cent to partially or wholly fund transit in Wichita.

Source: University of Kansas

Chapter III detailed the current funding sources for Wichita Transit. In 2007 Wichita Transit received almost $2 Million in fare revenues, fees for service and other funds. The Kansas Department of Transportation contributed $1.3 Million. The remainder of Wichita Transit's 2007 Operating Budget was split evenly between Local and Federal Sources ($3.6 Million Local and $3.7 Million Federal). The budget looks much the same in 2010. Local funding for transit is received from the Wichita General Fund which derives its revenue principally from property taxes but also garners revenue from sales taxes, franchise fees, fines and fees for service.

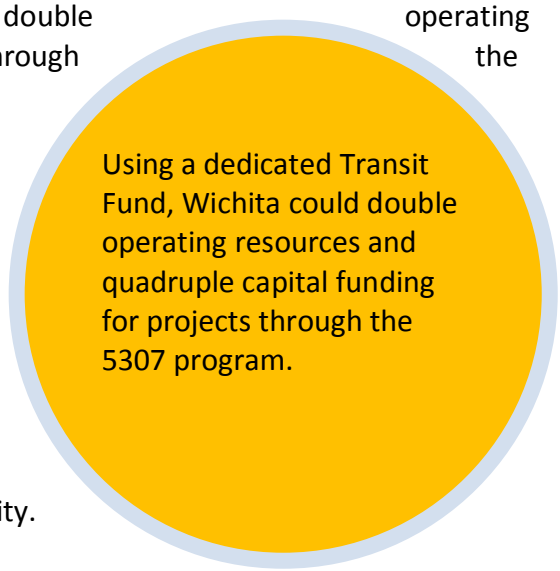
Visionary transit systems across the nation derive funding from a variety of sources. Some develop dedicated revenue streams, while others increase the cost of parking and congested roads to influence ridership choices through market forces. As Wichita develops its dramatic vision to expand transit service across the region community leaders must develop new local sources of revenue. Without dedicated revenue Wichita Transit cannot hope to increase transit accessibility for the region. A discussion of available funding options follows. Wichita may choose to enact one or many of these initiatives to develop a dedicated Transit Fund for the region.

B. Federal Funding

1. Operating and Capital Funds

Wichita Transit receives capital and operating funds from the Federal Transit Administration (FTA) through the 5307 Urbanized Area Formula Funding program. The 5307 Funding formula allocates funds for capital improvements such as facilities and buses at 80 percent of the net project cost and planning assistance at 50 percent of net project cost. The remaining funding must come from local sources. Additionally, agencies may receive 90 percent Federal share of 5307 Formula funds for projects related to bicycling or vehicle-related equipment attributable to compliance with the Clean Air Act or Americans with Disabilities Act.

Increasing local funding for transit through the development of a dedicated Transit Fund enables Wichita Transit to leverage its resources to obtain higher levels of Federal matching funding. Using a dedicated Transit Fund, Wichita could double operating resources and quadruple capital funding for projects through the 5307 program.



2. ARRA, Tiger and TIGGER grants

The American Recovery and Reinvestment Act (ARRA) and its economic stimulus programs could provide Wichita with substantial capital funding. To provide economic stimulus through ARRA, the United States Department of Transportation (USDOT) distributes Transportation Investment Generating Economic Recovery (TIGER) grants. TIGER grants supplement large capital programs across the United States to support infrastructure, safety, livability and sustainability.

Another round of TIGER grants may follow in the middle of 2010.
A bold plan with concrete steps for transit expansion in Wichita could gain significant additional funding for new facilities, buses and other capital costs through a TIGER grant.

The FTA also administers its Transit Investments for Greenhouse Gas and Energy Reduction (TIGGER) program to reduce greenhouse gas emissions and energy uses with new strategies in transit. Wichita Transit could pursue capital funding through TIGGER for new lightweight, fuel efficient buses or rolling stock that included on-board vehicle energy management techniques like regenerative braking, fuel cells or energy storage. TIGGER funding helps with capital costs and reduces greenhouse gas emissions while also helping the region avoid designation as a non-attainment zone for emissions by the Environmental Protection Agency.

C. State funding

The Kansas Department of Transportation provides just over $1 Million annually to support transit in Wichita. The State of Kansas T-Link Task Force recommended expansion of funding for transit and the resulting "T-Works" (House Bill 2650) would double transit funding across the state. That bill has passed out of committee and will soon be voted on by the House.
State funding for transit, while substantial, cannot be increased without state legislature approval.

Community leaders should look to local funding sources to provide the budget for a new vision for Wichita Transit.

D. Traditional Local Funding Sources

1. Property Tax

Like most cities its size, the City of Wichita derives the majority of its revenue from property tax revenues. Property tax revenues go into the City General Fund and are used for a wide variety of projects to maintain infrastructure and public safety. In 2008 the TranSystems's study found that over the previous 10 years property tax revenues more than doubled for the City of Wichita. Over the same period Wichita Transit's local funding remained essentially the same. Wichita Transit's local funding failed to keep pace with the rise in property tax revenues and reduced the share of City funds to transit over the past 10 years. In order to grow Wichita Transit should have a dedicated revenue stream that grows with the community rather than a static General Fund appropriation.

2. Sales Tax

Sales taxes are the most widely used local and regional funding method for public transportation nationwide. Sales taxation levels dedicated to transit range from 0.25 to 1.0 percent of sales in a city or region. Sales taxes deliver higher yields and stability than other forms of taxation. A well design sales tax policy may often exempt food, clothing or prescription drugs to reduce the more regressive aspects of sales taxation.

The following figure shows the sales tax revenues generated in 2008 for Sedgwick County for the Intrust Arena sales tax. That one-cent tax raised over $205 Million for the construction of

the Arena over a 30 month period. Tom Baalman, owner of B&B Lumber told the Wichita Eagle "we never felt the effect of it." A sales tax dedicated to Wichita Transit on the lower end of the national spectrum (0.25 cents) would still generate a substantial increase in funding for transit. With a stable, annual revenue source Wichita Transit can plan for expanded routes, hours and also aggressively pursue Federal matching funds.

Figure 67 Sales Tax Collections

2008 Sales Tax Collections	1.0 Cent	0.25 Cent	% of Total
City limits of Wichita	$70,660,803	$17,665,201	78%
City limits of other cities	$7,457,330	$1,864,333	8%
Unincorporated area of the County	$12,180,536	$3,045,134	13%
Total	$90,298,669	$22,574,667	

Source: City of Wichita

3. Contract Agreements

Transit agencies often use their expertise and excess capacity to deliver transportation services on contract to municipal and county governments, industries, health and education institutions. Wichita transit may deliver service to external cities or colleges for a fee on a per-hour, per-vehicle or per-trip basis. TranSystems' 2008 study also estimated a $20 per student semester fee at Wichita State University would generate $571,000 annually and allow Wichita Transit to provide service to all students at no additional charge.

4. Advertising

Most transit agencies sell and display advertising on their buses and at shelters and stations. The most successful agencies derive no more than 3 percent of operating revenues from advertising. Wichita Transit received 0.5 percent of operating revenues from advertising sales in 2009. Ad revenue will potentially increase as service expands but Wichita should not expect a large boost from advertising fees.

5. Concessions

Large transit agencies may generate a small proportion of revenue from the sale of food in transit centers. Like advertising, Wichita Transit cannot expect too much revenue from this source. In 2009 the vending machines at the Transit Center generated less than 0.1 percent of operating revenue. Service expansion may also increase the number of patrons but large increases in food consumption are not forecast.

E. Non-Traditional Local Funding Sources

1. Business/Activity Funding Sources

Employer Payroll Taxes

Some cities require employers in transportation districts to pay a tax to support transit. Employer payroll taxes are assessed by the state on the gross payroll paid. These programs must garner enabling legislation through the state and are often administered for the city by the state department of revenue. Payroll taxes to support transit provide a revenue stream that both balance the regressive nature of sales taxes and requires business pay a fee for the greater access to employees and customers derived from a robust transit system. Enabling legislation and developing support in the business community for a payroll tax system may prove difficult.

Rental Car Fees

Transit agencies may derive revenue from a percentage or flat fee on regional passenger car rentals. Rates typically range from 1-2 percent. Allegheny County (Pittsburgh) PA charges a flat $2 on all rentals under 30 days. Rental car fees can help offset the provision of transit that serves their offices and links modes of transportation together.

Occupancy Tax

Occupancy taxes, also known as a hotel-motel tax, charge taxes for room rental in a district. Charges may vary with the size of the facility. Cities typically use occupancy taxes to promote tourism. Occupancy taxes devoted to transit may help fund the Q-Line Urban Circulator serving many of the same hotels and destinations.

Parking

Cities use parking policies to manage traffic, shift decisions from auto travel to other modes and generate revenue. Higher parking prices and scarce parking spots change decisions. A well-regulated parking policy in downtown Wichita could promote transit by producing an incentive to use the new system and new charges for parking could add a revenue stream to Wichita Transit.

Realty-Transfer Tax

Real estate transfer taxes are levied on the sale of a pre-determined class of property – residential, commercial or industrial. In some instances nationwide the seller is assessed the tax because the value of the property has increased through its associate with transit improvements. In other cases the buyer pays the tax, as they invest in the future of the community. Wichita could implement a realty transfer tax on classes of property it envisions will benefit most from improvements in transit.

Utility Fees

Some cities assess a transportation fee much like electric or water utilities. Subscribers pay an agreed upon fee for the delivery of transit services in the community. A local utility fee for transit could garner public support but would, necessarily, generate far less revenue than sales taxes. Utility fees may provide one “Pay to Play” option for communities outside Wichita who wish to “Plug-In” to the Wichita Transit system.

Market-Based Sources

Due to the relative lack of congestion in Wichita, market-based sources would generate little revenue. Instead market-based measures serve as disincentives to auto travel for choice riders and to change decisions on mode choice. Combined with the creation of a fast, efficient transit network funded in small part from market-based sources, Wichitans make travel choices that reflect the true infrastructure, environmental and opportunity costs of auto travel. Toll roads, congestion pricing and emission fees are examples of market-based funding sources Wichita may consider.

2. Other Funding Sources

Debt financing requires the issuance of bonds and payment of debt service. Wichita Transit may issue bonds to pay for large capital improvements and pay for these over a period of years. As described in Chapter VII the expansion of service in Wichita to meet the new vision requires significant capital investment. The community could leverage large bonds to garner Federal grants for significant capital improvements.

F. Funding Vision

Chapter VII detailed the costs of the new vision for transit in Wichita. This vision requires large initial capital investments and continued annual operating and capital budgets. Current revenue levels are not sufficient to fund either initial or operating costs. To make the new vision a reality Wichitans must develop a funding strategy to provide $145-160 Million in initial capital funds.

Wichita 5307 Formula funds could fund large capital expenditures that only 20 percent local matching funds but pay 80 percent of the capital cost. Federal funding through the 5307 Formula would only require Wichita to devote $5.6 Million for the $28.5 Million BRT construction and $1 Million for BRT Buses. Formula funds through FTA's New Starts program could deliver the majority of the initial capital costs necessary to fund Wichita's bold new transit vision.

A new round of ARRA funding may provide Wichita with the window to pursue its vision for transit. Stimulus funds require a larger local matching share and could necessitate a bond issue to leverage Federal funding.

Figure 68 Federal Match Required

Rolling Stock				
	Cost per Unit	**Qty**	**Total Cost**	**20% Match**
Standard Bus	$410,000	177	$72,734,000	$14,546,800
Stylized BRT Bus	$600,000	10	$5,760,000	$1,152,000
		Rolling Stock Total:	$78,494,000	$15,698,800
Facilities				
	Cost per Unit	**Qty**	**Total**	
Bus Facility (300 Bus Capacity)		*estimated*	$30-45 Million	$6-9,000,000
Shelters	$10,000	600	$6,000,000	$1,200,000
Bus Rapid Transit				
	Cost per Mile	**Miles**	**Total Cost**	
Right of Way, Shelters, Signal Priority	$3,000,000	9.49	$28,458,000	$5,691,600

Source: University of Kansas

To provide operating revenues citizens must create a mechanism that provides $50 Million more than current funding levels. The following figure shows the gap between existing operating revenues and the cost of the new vision.

Figure 69 Current Revenues and Operating Funding Gap

Fares/other	$2,000,000
KS DOT	$1,300,000
City	$3,600,000
Federal	$3,700,000
Total:	$10,600,000
Gap:	$51,100,100

Source: University of Kansas

Community leaders and residents of Wichita can pursue one or many of the funding strategies outlined above. Wichita might fill the funding gap by establishing a Transit Fund with to generate revenue specifically for transit. A Transit Fund removes Wichita Transit revenues from the General Fund and creates a dedicated revenue stream for transit.

Sales taxes dedicated to transit are the most popular funding method nationwide. Sales taxes could wholly or partially fund service expansions in Wichita. The figure below shows how a ¼ cent sales tax on the low end of national averages would address the funding gap. A ¾ cent tax is necessary to fill the gap completely through dedicated sales taxation. A single revenue stream has the virtue of being easier to understand and describe to the voting public.

Figure 70 Dedicated Sales Taxes

1/4 Cent Sales Tax	
Fares/other	$4,000,000
KS DOT	$1,300,000
Transit Fund	$17,665,201
Federal	$3,700,000
Total:	$26,665,201
Gap:	$35,034,899

3/4 Cent Sales Tax	
Fares/other	$4,000,000
KS DOT	$1,300,000
Transit Fund	$52,995,602
Federal	$3,700,000
Total:	$61,995,602
Gap:	-$295,502

Source: City of Wichita

Wichita may choose to pursue the lower level sales tax and fill the gap with other funding sources like car rental and occupancy taxes. These taxes, and other usage taxes like those for congestion and parking, could form a small portion of the revenue stream but should not be expected to significantly reduce the gap. Outside of a combination of dedicated funding from property taxes and sales taxation a ¾ cent tax provides the most stable, predictable and explainable revenue source for Wichita Transit's new vision.

The next chapter describes next steps recommended to move the plan forward.

Chapter IX: NEXT STEPS

A. Involve the Community

Additional input should build on past input from the Wichita Transit Advisory Board, public opinion survey, and the Non-profit Chamber of Services.

Wichita Transit Advisory Board Reviews Vision and Provides Input
Source: University of Kansas

B. Continue collaboration with Downtown planning:

Source: University of Kansas

Consider expanded Q routes as part of the vision, check for possible overlap and adjust cost as needed.

C. Encourage a transit supportive environment with related land use policies. Increased density increases ridership. A strong pedestrian environment enhances transit.

D. Inform the public of the benefits of transit and build support.

Wichita Advisory Board Discusses Next Steps

Source: University of Kansas

APPENDIX

A: EXISTING ROUTE DESCRIPTIONS

College Hill,

Route: Runs East along Wilson and Kellogg to Hawker Beechcraft on Webb Rd.
Frequency: 30 minutes
Hours of Operation:
Monday through Friday 6:00AM to 7:00PM, Saturday 7:00AM to 6:00PM
Stops served along the route:

- Clifton Square
- East High School
- Hawker Beechcraft
- Red Cross
- Towne East Square
- V.A. Hospital

East 13th,

Route: East along 10th and 13th Streets to Rock Rd.
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Dunbar Adult Education
- Ken-Mar Shopping Center
- K.U. Medical Center
- Sedgwick County Health Department

East 17th,

Route: Travels from Woodlawn and 21st Street southwest to William and Emporia.
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Brittany Center
- St. Francis Medical Center
- Wichita State University

East Central,

Route: Travels along Central between Webb and Topeka
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Normandy Square
- Wesley Medical Center
- Wichita Clinic

East Harry,

Route: Travels along Harry with a detour along Kellogg Drive from Rock to Greenwich Road.
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Eastgate Mall
- Good Shepherd (by request only)
- Guadalupe Clinic (by request only)
- Harry Street Mall
- Via Christi/St. Joseph Hotel
- Towne East Square
- Walmart

East Lincoln,

Route: Travels along Lincoln from Washington to Rock Road.
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Eastgate Shopping Center
- KETCH (first and last route buses only)
- Parklane Shopping Center
- Southeast High School
- Towne East Square

Meridian Shuttle,

Route: Makes a loop around Meridian and West Streets from 235 to 21st St.
Frequency: 1 hour
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Newman University
- Towne West Square
- Sedgwick County Zoo (by request only)
- Twin Lakes Shopping Center

North Broadway,

Route: Travels along Broadway from 1st Street to 21st Street and then along 21st Street to Oliver.
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Calvary Towers
- Union Mission
- Wichita State University

North Waco,

Route: Travels North on Waco to 37th Street and then East to Hydraulic.
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:
Coleman Company, Inc.

- Downtown Post Office
- Evergreen Park
- North High School
- Pratt Industries
- USD 259 Administrative Center / School Service Center

Riverside,

Route: Travels along the river north to 29th Street.
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Central Riverside Park
- City Hall
- Evergreen Park
- Greenway Manor

- Sedgwick County Courthouse
- Twin Lakes Shopping Center

Rock Road Shuttle,

Route: Travels from Town East Square at Kellogg and Rock Rd North to 37th Street.
Frequency: 1 hour
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Bradley Fair Shopping Center
- Brittany Center
- Mirror, Inc.
- Sam's Club
- Social Security Administration / Benefits
- Town East Square
- Walmart

South Broadway,

Route: Travels South on Broadway and Southeast to 31st and George Washington Blvd.
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Cessna Activity Center
- Hamilton Middle School
- Jardine Edison Academy
- Kansas Air National Guard
- Kansas Aviation Museum
- McConnell Air Force Base
- Mead Middle School
- Naval Reserve Training Center
- Spirit Aerosystems

South Main,

Route: Travels along Main, Broadway, and Hydraulic South to MacArthur and Hydraulic.
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Envision
- Pawnee Plaza Mall
- South City Shopping Center

South Seneca,

Route: Travels along South Seneca to Meridian and 47th Street.
Frequency: 30 minutes

Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Mobile Manor Estates
- Seneca Square Shopping Center
- South High School
- West High School
- Westway Shopping Center

Southside Connector,
Route: Travels from 55th and Broadway to MacArthur and K-15.
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Boeing
- Dillons
- Kmart
- Oaklawn
- Wichita Area Technical College
- Youthville
- 47th St. South and Broadway

West Central,
Route: Travels West along 2nd, Douglas, and Central Streets and South to Towne West Square.
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Century II Convention Center
- Dillons
- Exploration Place
- Independent Living Resource Center
- Sedgwick County Health Department
- Towne West Square

West Maple,
Route: Travels West along Maple to Tyler and Central.
Frequency: 30 minutes
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Crossroads Shopping Center
- Friends University

- Lowe's
- Mayberry Middle School
- Sam's Club
- Towne West Square
- Walmart
- Wilbur Middle School

Westside Connector

Route: Travels from 21st and Maize to Mid-Continent Airport.
Frequency: 1 hour
Hours of Operation: Monday through Friday 6:00AM to 7:00PM
Saturday 7:00AM to 6:00PM
Stops served along the route:

- Airport Hilton
- Bombardier (on request)
- Bishop Carroll High School
- Catholic Charities
- Holy Family Center
- Home Depot
- Lowe's
- Main Post office
- Mid-Continental Airport
- Minor Emergency Center
- Northwest High School
- Sandpiper Bay (on request)
- Westlink Shopping Center
- Wilbur Middle School

Downtown Routes, Q-Line is a free, downtown trolley shuttle that operates in the evening to connect individuals with downtown nightlife. The trolleys are smaller buses, which replicate an earlier era of trolleys. The Q-Line has 9 designated stops, but can be boarded or dropped off at any intersection along the route.

- Lawrence Dumont Stadium
- Exploration Place
- Century II
- Hyatt Hotel
- Intrust Bank Arena
- Old Town South
- 1st and Mead
- Old Town Square
- Orpheum Theater